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Addendum Report: Cultural Resources Survey of an 18-Mile-Long Gas Pipeline and 1,000-Foot-Long Salt Water Disposal Line Associated with the FGE Texas Project, Mitchell and Sterling Counties, Texas

Prepared for

U.S. Environmental Protection Agency

On behalf of

FGE Power, LLC

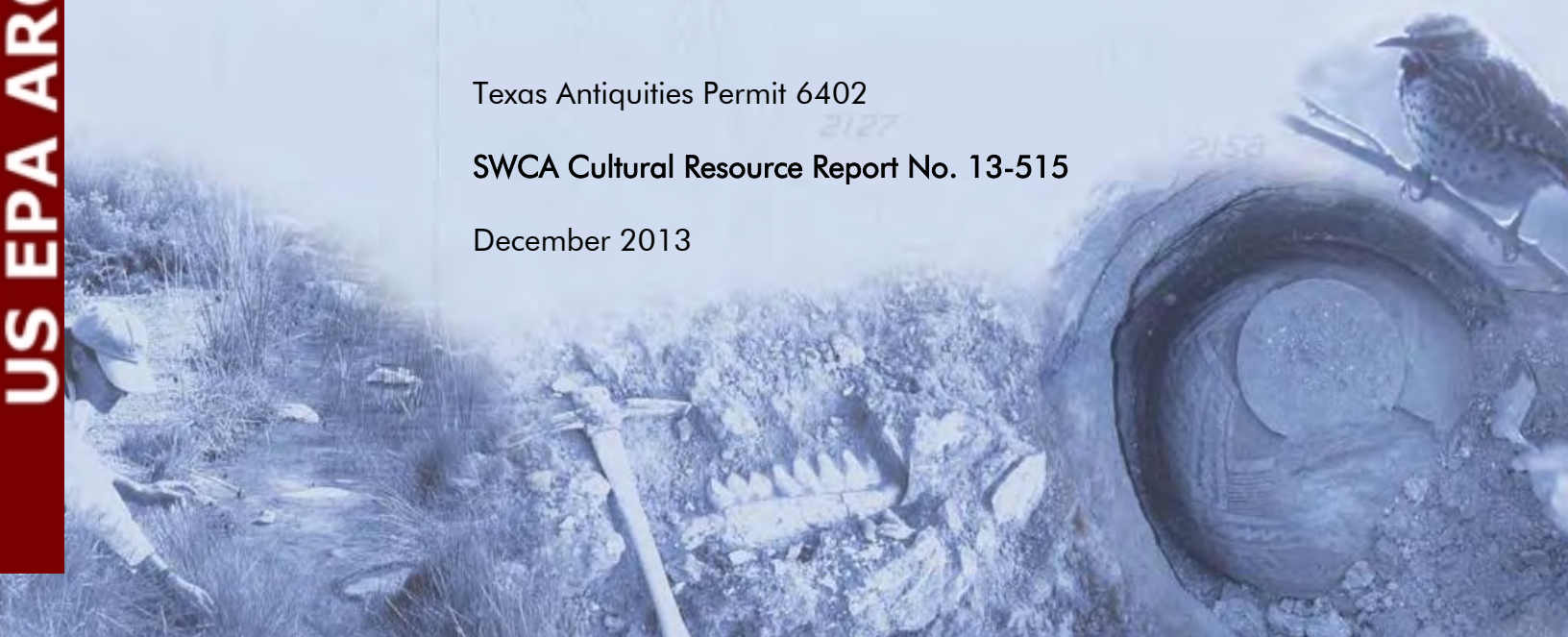
Prepared by

SWCA Environmental Consultants

Texas Antiquities Permit 6402

SWCA Cultural Resource Report No. 13-515

December 2013



ADDENDUM REPORT: CULTURAL RESOURCES SURVEY OF AN 18-MILE-LONG GAS PIPELINE AND 1,000-FOOT-LONG SALT WATER DISPOSAL LINE ASSOCIATED WITH THE FGE TEXAS PROJECT, MITCHELL AND STERLING COUNTIES, TEXAS

Prepared for

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Texas Antiquities Permit 6402

SWCA Project Number 23583-AUS
SWCA Cultural Resources Report No. 13-515

December 2013

ABSTRACT

This addendum report addresses the results of additional archaeological survey conducted by SWCA Environmental Consultants (SWCA) on behalf of FGE Power, LLC (FGE), in support of a proposed power plant, termed the "FGE Texas Project" in Mitchell and Sterling Counties, Texas. FGE proposes to construct a greenfield electric generating station and ancillary equipment on an approximately 200-acre site located about 3.5 miles south-southwest of Westbrook, Mitchell County, Texas. A draft report detailing the results of cultural resource investigations within the 200-acre site was submitted to the Texas Historical Commission (THC) for review on May 16, 2013. The THC concurred with SWCA's recommendation of project clearance in a letter dated June 3, 2013. Subsequent to receiving THC concurrence of the draft report, FGE proposed to construct an approximately 18-mile-long, 16-inch-diameter gas supply pipeline and 1,000-foot-long salt water disposal (SWD) line in Mitchell and Sterling Counties, both of which will tie in to the 200-acre site. This addendum summarizes the survey results of the 18-mile-long gas pipeline and 1,000-foot-long SWD line and is intended to supplement the previous report summarizing the results of investigation for the 200-acre site (Stotts et al. 2013).

The gas pipeline is proposed on FGE property and within the rights-of-way (ROWs) of county and state-managed roadways, extending from the proposed FGE Texas Project site (3.32 miles southwest of Westbrook in Mitchell County) to an existing gas facility 0.79 mile south of the county line in Sterling County, Texas. The SWD line extends west from the proposed FGE Texas Project site across County Road (CR) 266 onto private property. The area of potential effects (APE) is defined as the entire project area, consisting of a 100-foot-wide easement centered on the gas pipeline centerline and a 50-foot-wide easement centered on the SWD line centerline, totaling 219.33 acres. The depth of impact has not yet been determined, but is expected not to exceed 6–8 feet with the exception of horizontal directional drill (HDD) locations.

The goal of the work was to locate cultural resources in the APE, establish vertical and horizontal site boundaries as appropriate with regard to the APE, and evaluate any site recorded in the APE for eligibility as a State Antiquities Landmark (SAL) or for listing on the National Register of Historic Places (NRHP). All work was conducted in accordance with the standards and guidelines of the Antiquities Code of Texas. As the project will require authorization under current Greenhouse Gas permitting requirements, administered by the U.S. Environmental Protection Agency, archaeological investigations were also conducted in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended).

The background literature review determined that the majority of the project area has not been previously surveyed, although the FGE Texas Project tract was the subject of a 2013 survey conducted by SWCA (Stotts et al. 2013). One archaeological site, 41MH90, was documented as a result of this survey approximately 30 meters (m) east of the CR 266 ROW, outside of the current project area. Site 41MH90 consists of 11 historic resources including six standing structures. The site was recommended not eligible for listing as a SAL or for inclusion in the NRHP under any criteria based on its poor condition, compromised integrity, and lack of association with significant individuals. No other archaeological surveys have been conducted within 1 mile of the project area. One Official Texas Historical Marker (4759) is within the 1-mile study area, on the south side of CR 262, just west of CR 266. This marker, erected in 1972, signifies the site of the Conaway School, which was established in 1896 to serve a small community of settlers.

Intensive survey within the project area revealed common modern disturbances associated with roadway construction and maintenance as well as farming and ranching activities. A total of 293 shovel tests and two auger probes were excavated across the project area, five of which were positive for cultural

resources. Five archaeological sites were documented as a result of the investigation. These include three sparse prehistoric lithic scatters (41MH93, 41MH94, and 41ST187), one twentieth century historic farmstead (41MH95), and one prehistoric campsite (41MH96). None of these sites are recommended as eligible for listing as a SAL or for inclusion in the NRHP based on their poor condition, compromised integrity, and in the case of 41MH95, lack of association with significant individuals. Because of the severely deteriorated condition of its individual resources, the 41MH95 cluster has lost its integrity of design, setting, materials, workmanship, and feeling. A total of five isolated finds were also recorded (four prehistoric and one historic), which investigations determined were not associated with an archaeological site.

SWCA's intensive cultural resources survey determined that the project area does not contain significant prehistoric or historic resources. As such, the proposed gas pipeline and SWD line associated with the FGE Texas Project undertaking will not affect significant cultural resources. Due to the potential for deeply buried cultural deposits in the area immediately south of Beals Creek, FGE plans to cross this area using a HDD for a distance of 300 m, thus avoiding impacts. If future construction occurs immediately south of Beals Creek that differs from the currently proposed project then further investigations are recommended; specifically, deep, mechanical excavation (e.g., backhoe trenching) to determine the presence/absence of deeply buried cultural deposits. With this stipulation, SWCA recommends that a determination of *No Historic Properties Affected* be granted for the project to proceed as planned.

ACKNOWLEDGEMENTS

Judith Cooper served as Principal Investigator and Project Manager for the duration of the project, ably overseeing overall logistics and organization, and managing reporting and agency consultation. Matthew Stotts served as Field Director and primary report author, assisted in the field and through report production by Crew Chief Alamea Young and Field Technicians Matthew Carter, Rhiana Ward, and Katie Sloan. Carole Carpenter expertly produced all field and report maps for the project.

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INTRODUCTION

On behalf of FGE Power, LLC (FGE), SWCA Environmental Consultants (SWCA) conducted an intensive cultural resources survey of an approximately 18-mile-long, 16-inch-diameter proposed gas supply pipeline and 1,000-foot-long salt water disposal (SWD) line in Mitchell and Sterling Counties, Texas. These linear projects are part of the larger FGE Texas Project, a proposed power plant in Mitchell County (Figure 1). In December 2012, Texas Antiquities Permit 6402 was issued for investigations at the proposed 200-acre FGE Texas Project site. A report (i.e., Stotts et al. 2013) regarding the results of SWCA's investigations and recommendations for no further work was reviewed and concurred upon by the Texas Historical Commission (THC) in June 2013. Subsequent to that concurrence, additional facilities have been added to the project that will tie into the proposed plant. This addendum report covers the cultural resources investigations of the additional facilities, which were conducted under the same Antiquities Permit (6402).

The proposed gas pipeline is located on FGE property and within the rights-of-way (ROWs) of county and state-managed roadways extending from the FGE Texas Project site (3.32 miles southwest of Westbrook in Mitchell County) to an existing gas facility 0.79 mile south of the county line in Sterling County, Texas (Figure 1). The SWD line extends west from the FGE facility across County Road (CR) 266 onto private property. The area of potential effects (APE) is defined as the entire project area, consisting of a 100-foot-wide easement for the gas pipeline and a 50-foot-wide easement for the SWD line, totaling 219.33 acres. The depth of impact has not yet been determined, but is expected not to exceed 6–8 feet with the exception of horizontal directional drill (HDD) locations.

The proposed project will require authorization under current Greenhouse Gas (GHG) permitting requirements. GHG permits are presently administered by the Environmental Protection Agency (EPA); therefore, archaeological investigations were conducted in accordance with Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended). In addition, as the majority of the APE is owned by Mitchell County and the Texas Department of Transportation (TxDOT), political subdivisions of the State of Texas, cultural resource investigations were conducted to satisfy the requirements of the Antiquities Code of Texas (Permit No. 6402) with Judith R. Cooper serving as Principal Investigator (Appendix A).

SWCA archaeologists Matthew Stotts, Alamea Young, Matthew Carter, Rhiana Ward, and Katie Sloan conducted the field work on December 9–13, 2013. The purpose of the work was to locate and identify all prehistoric and historic archaeological sites within the APE, establish vertical and horizontal site boundaries as appropriate with regard to the project area, and evaluate the significance and eligibility of any site recorded within the property for listing on the National Register of Historic Places (NRHP) and/or as a State Antiquities Landmark (SAL).

DEFINITION OF STUDY AREA AND ENVIRONMENTAL SETTING

The project area spans open, terraced agricultural fields and undeveloped rangeland in central to southern Mitchell County and into northern Sterling County. As proposed, the gas pipeline will be constructed within existing ROWs of county and state-managed roadways. The north end of the proposed gas pipeline ties into the FGE Texas Project roughly 3.25 miles southwest of Westbrook, Texas, on the east side of CR 266 and north of CR 262. The proposed route parallels these roads within the road ROW before turning to the south along the west side of CR 670 and the east side of Highway 163, for a total distance of approximately 18 miles. The southern terminus is an existing gas facility on the west side of Highway 163, 0.79 mile south of the Mitchell/Sterling County line. The 1,000-foot-long SWD line extends to the west from the proposed FGE Texas Project facility onto private property, which consists of heavily terraced agricultural land.

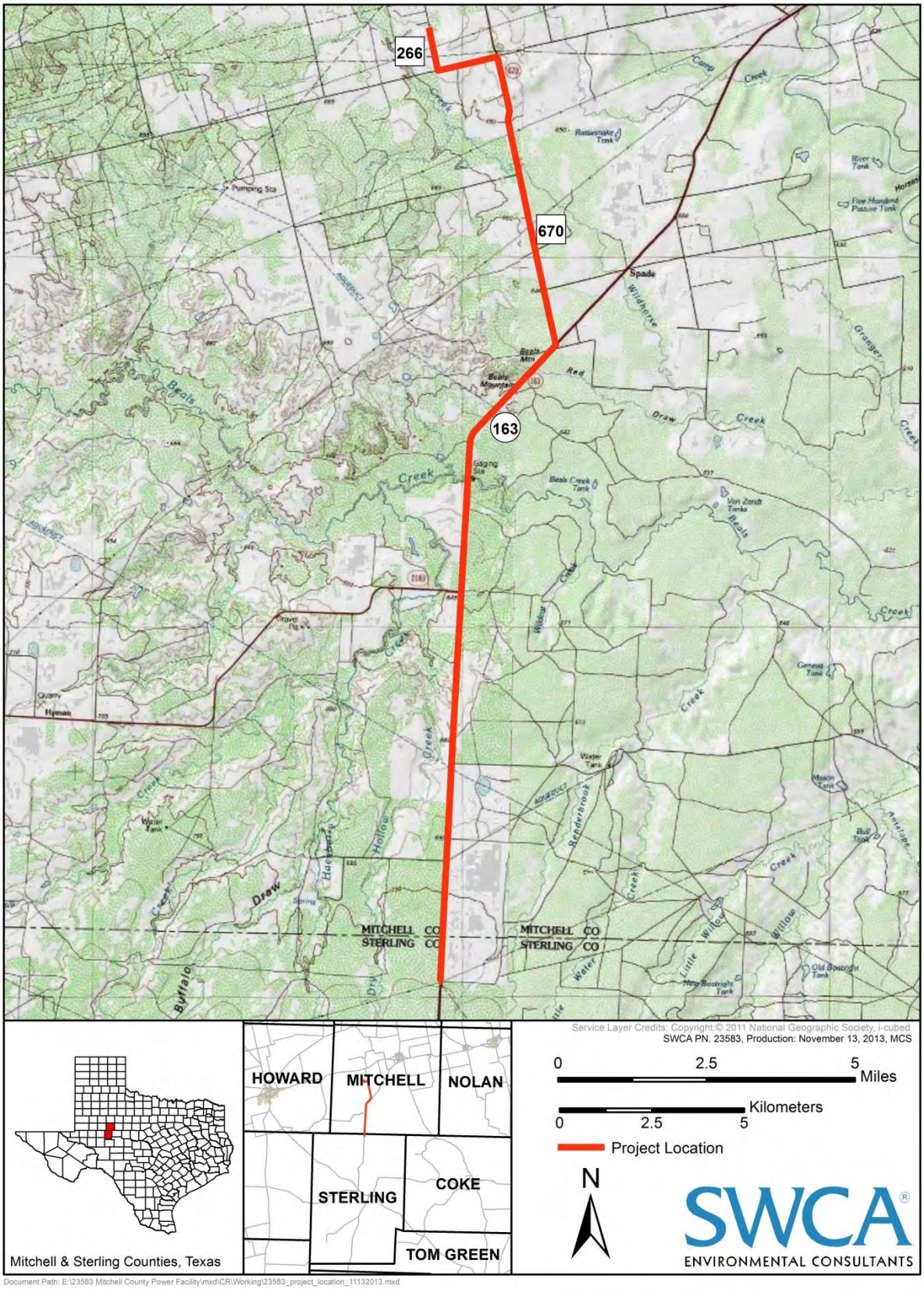

Figure 1. Project location map.

GEOLOGY AND SOILS

The northern two-thirds of the proposed route traverses the Dockum Group, Triassic-age geologic formation (Barnes 1994). This formation is composed of sandstone, clay, shale, and conglomerate. Sandstone is fine- to coarse-grained quartz that is greenish-gray to brownish-red in color while the clay is sandy or silty and reddish-brown in color. Shale is described as sandy and calcareous in portions and the conglomerate is composed of various-colored chert pebbles, quartz, sandstone slabs, and petrified wood (Barnes 1994). The total thickness of this formation is 450 feet. Within this area, Quaternary alluvium is mapped along the margins of Beals Creek. The southern third of the proposed route is underlain by the Quaternary-age Lingos Formation that is characterized as coalescing alluvial fan deposits consisting of an upward-fining sequence from fluvial gravel to eolian sand that extends eastward from the Eastern Caprock Escarpment (Barnes 1994). The maximum thickness of this formation is approximately 130 feet.

Mapped soils across the proposed route include the Miles-Cobb, Vernon-Stamford-Sagerton, Potter-Mansker, and Spur-Mereta-Angelo associations (NRCS 2013). The Miles-Cobb association is characterized as brown to reddish brown fine sandy loams over friable sandy clay loams situated on broad areas of level to gently sloping soils derived from old alluvium and sandstone regolith (Dixon et al. 1973). The Vernon-Stamford-Sagerton association is described as reddish brown clay loams to clay overlying reddish brown clays that occupy narrow ridges, hilltops, and side slopes of drainages (Dixon et al. 1973). The Potter-Mansker association is characterized as nearly level to steep loams overlying clay loams or shallow caliche situated on slopes below plateaus (Dixon et al. 1973; Schwartz 1992). Finally, the soil series of the Spur-Mereta-Angelo association are generally described as level to gently sloping soils derived from calcareous loamy alluvium and colluvium limestone parent material (NRCS 2013). These soils generally occupy treads of terraces and knolls on dissected plateaus and alluvial fans (NRCS 2013). Prominent waterways intersecting the project area include Wildhorse Creek, Beals Creek, and Dry Hollow Creek as well as many of their smaller, tributary drainages.

CULTURAL BACKGROUND AND SETTING

The project area lies on the southwestern edge of the Southern Plains archaeological region (Hofman 1989:1–2), bordering the Trans-Pecos region to the west. Most previously recorded sites in the area are small occupational sites with minimal research potential, often lacking a means of assigning cultural affiliation. The cumulative assemblage, however, indicates occupation of the area throughout most prehistoric and historic stages and phases that are recognized in the Southern Plains region. Each stage of the basic four-part division of human chronology, including Paleoindian, Archaic, Late Prehistoric, and Historic periods, is represented in the archaeological record of the area. A detailed cultural chronology of the region is presented in the aforementioned initial FGE Project report (Stotts et al. 2013).

METHODS

BACKGROUND REVIEW

SWCA conducted a thorough background cultural resources and environmental literature search of the project area. An SWCA archaeologist examined relevant portions of the Westbrook, Lake Colorado City, Spade Ranch, Hyman Northeast, and Buffalo Draw, Texas U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps on the THC's Texas Historic Sites Atlas (Atlas). This source provided information on the nature and location of previously conducted archaeological surveys, previously recorded cultural resources, locations of NRHP properties, sites designated as SALs, Official Texas Historical Markers (OTHMs), Recorded Texas Historic Landmarks (RTHLs), cemeteries, and local neighborhood surveys. However, the Atlas does not necessarily list all previous work conducted within a specific area. Previous cultural resource investigations listed on

the Atlas are limited to projects under the purview of the Antiquities Code of Texas or the NHPA. In addition, projects under these regulations may not be posted on Atlas due to a delay between fieldwork and report completion. As a part of the review, a SWCA archaeologist reviewed the TxDOT Historic Overlay, a mapping/Geographic Information System (GIS) database with historic maps and resource information covering most portions of the state (Foster et al. 2006). Aerial photographs were also reviewed to assist in identifying any disturbances.

Field Methods

SWCA's investigations consisted of an intensive pedestrian survey with subsurface investigations within the proposed APE. Archaeologists examined the ground surface for cultural resources. Subsurface investigations involved shovel testing in settings with the potential to contain buried cultural materials. For linear projects, the THC and Council for Texas Archeologists (CTA) survey standards require a minimum of 16 shovel tests per mile per 100 feet of survey corridor width. Following this standard, 291 shovel tests were required for a project area of this size, specifically, 288 along the 18-mile-long pipeline alignment and three shovel tests within the 1,000-foot SWD line. The shovel tests were approximately 30 centimeters (cm) in diameter and excavated to culturally sterile deposits or impassible clays, whichever came first. The matrix from each shovel test was screened through ¼-inch mesh, and the location of each excavation was plotted using a hand-held, sub-meter accurate Trimble Global Positioning Systems receiver. Each shovel test was recorded on a standardized form to document the excavations. As this was a non-collection survey, any artifacts discovered were to be tabulated, analyzed, and documented in the field, but not collected. Temporally diagnostic artifacts, if present, were to be described in detail and photographed in the field. Only particularly rare artifacts were to be collected.

Results

Background Review

The background literature review determined that the majority of project area has not been previously surveyed for cultural resources, although the FGE Texas Project tract was the subject of a 2013 survey conducted by SWCA (Stotts et al. 2013). One archaeological site, 41MH90, was documented as a result of this survey. Located 30 m east of the CR 266 ROW, site 41MH90 consists of 11 historic resources including six standing structures. The site was not recommended as eligible for listing as a SAL or for inclusion in the NRHP under any criteria based on its poor condition, compromised integrity, and lack of association with significant individuals. As such, no further investigation was recommended. The boundary of site 41MH90 is directly adjacent to, but does not overlap, the current project area. No additional archaeological surveys have been conducted within the 1-mile study area and there are no additional previously recorded cultural resources within or adjacent to the project area (Atlas).

One OTHM (4759) is located within the study area, on the south side of CR 262, just west of CR 266. This marker, erected in 1972, signifies the site of the Conaway School, which was established in 1896 to serve a small community of settlers. According to the marker many successful teachers, doctors, lawyers, and religious leaders began their studies at the Conaway School before the building was dismantled in 1947. This school is exhibited on the 1952 Westbrook USGS 7.5-minute topographic quadrangle, along with numerous buildings within the study area. Two buildings appear on this map on the east side of FM 670 approximately 1 mile south of CR 262. The path of the roadway is altered in this location and only one of the structures appears on the revised, 1978 map. The remaining structures are well away from the roadside and would not be impacted by the proposed project.

HISTORIC MAP AND AERIAL REVIEW

An SWCA archaeologist also reviewed the TxDOT Historic Overlay Maps (Foster et al. 2006). The historic overlay revealed 52 maps dating from 1760–1939 that overlap the project area (Foster et al. 2006). One of these, the 1854 Marcy Map of the Brazos and Big Wichita Rivers, indicates a wagon road "From Dona Ana, NM to Ft. Smith Ark. In 1849," intersecting the project area near the current location of CR 262 (Foster et al 2006). Additionally, the 1867 Holtz Map of Texas depicts "Lt. Michlers route to Ft. Washita in 1849" intersecting the proposed route near the current intersection of CR 670 and Highway 163. No additional cultural resources were noted. These maps also provided information regarding long-term land use of the property, which aided in gauging the intensity of agriculture-related disturbances over the past century.

FIELD SURVEY

Intensive pedestrian survey of the APE was conducted on December 9–13, 2013. SWCA excavated a total of 293 shovel tests within the project area, five of which were positive for cultural material (Figures 2A–2F; Appendix B). Two auger probes were also excavated on the south side of Beals Creek (Figure 2C; Appendix B). This total exceeds the THC minimum standards for linear projects of this size, especially given the relatively high surface visibility and frequent disturbances encountered. At the time of survey, bare ground surface visibility ranged from 10–100 percent, with an average of around 50 percent. Disturbance was noted due to roadway construction and ROW maintenance; existing utilities; plowing; fence line construction; construction of a firebreak; and sheet erosion. As disturbance was fairly ubiquitous within the TxDOT and county-managed road ROWs, these areas were subject to pedestrian and visual inspection without shovel testing. Shovel test excavation instead focused on the adjacent privately-owned properties, outside the disturbed road ROWs.

The 1,000-foot-long SWD line, which has a 50-foot-wide APE, extends west from FGE property, across CR 266, through a heavily disturbed agricultural field (Figure 3). Within the SWD APE, the entire field consists of heavily terraced cropland and an unnamed tributary of Wildhorse Creek, located to the south, has been extensively modified. No shovel testing was necessary for the SWD line due to the extensive landscape modification noted. At the time of survey, the field was fallow.

For the larger 18-mile-long gas pipeline APE, 1.5 miles (8.3 percent) consists of agricultural cropland (Figure 4). The vast majority of the route, however, crosses relatively open ranchland with vegetation consisting of mesquite, mid-length grasses, cacti, and yucca. As mentioned above, the TxDOT and county-managed ROWs exhibit various levels of disturbance, from repeated grading and maintenance (Figure 5), to excavation below grade and bridge or culvert construction (Figures 6 and 7). A bar ditch parallels the roadways through much of the APE and buried communications markers were noted along the Highway 163 ROW fence line extending from FM 670 to the southern project terminus (Figure 8). The southern end of the route terminates at an existing gas facility located west of Highway 163. This area was found to have been severely altered by recent pipeline and well pad construction (Figure 9). No shovel tests were excavated within the 0.09-mile-long segment at the southern terminus due to the extensive disturbance. In addition, various buried pipelines and overhead utilities intersect the APE, which constitute extensive, but localized, disturbances.

The most prevalent form of disturbance noted on privately-owned property is a continuous fire break, which parallels the ROW fence line through the southern 10 miles of APE, owned by the Spade Ranch (Figure 10). The fire break is 20 feet wide and has been mechanically graded and denuded of vegetation.

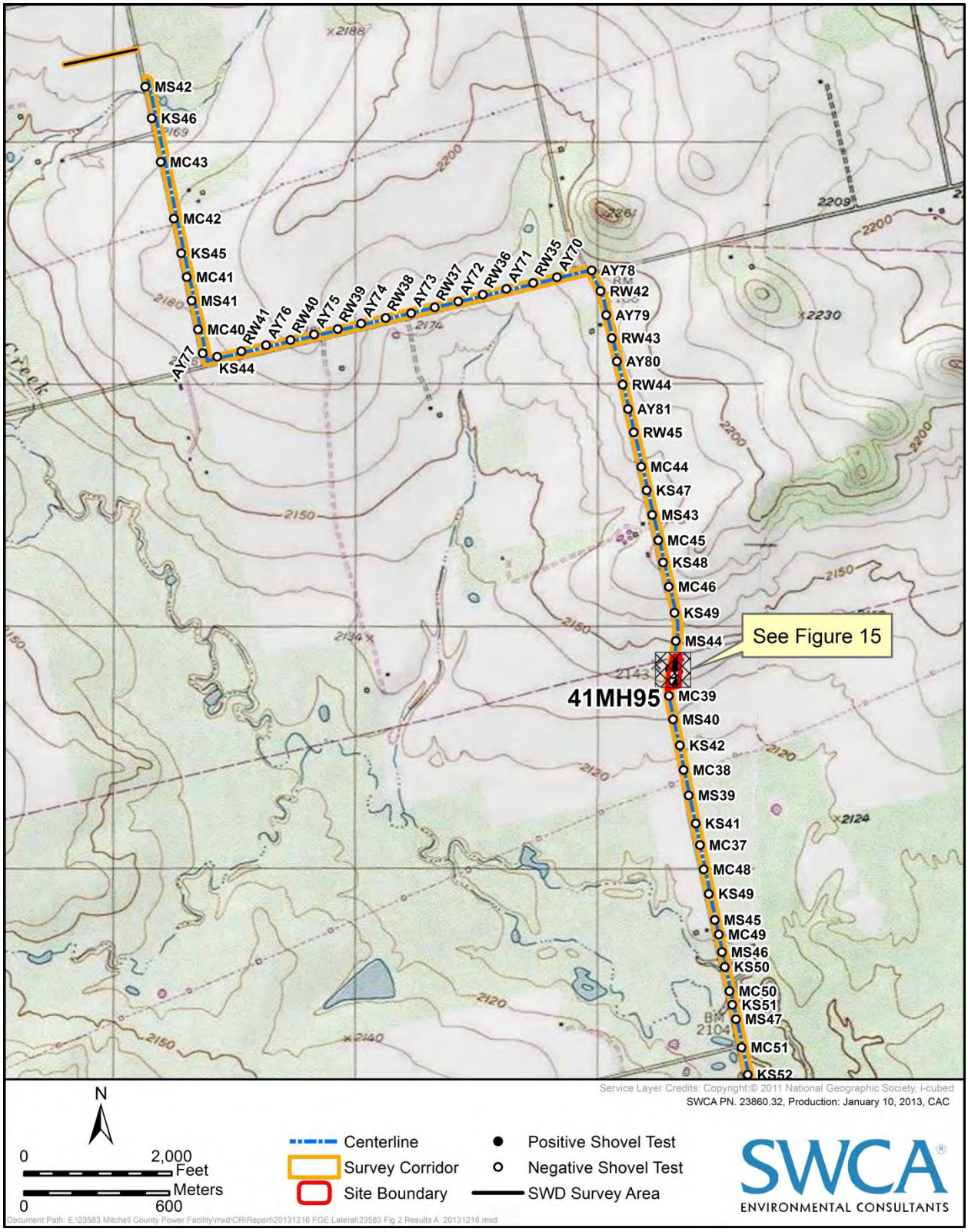

Figure 2A. Survey results map.

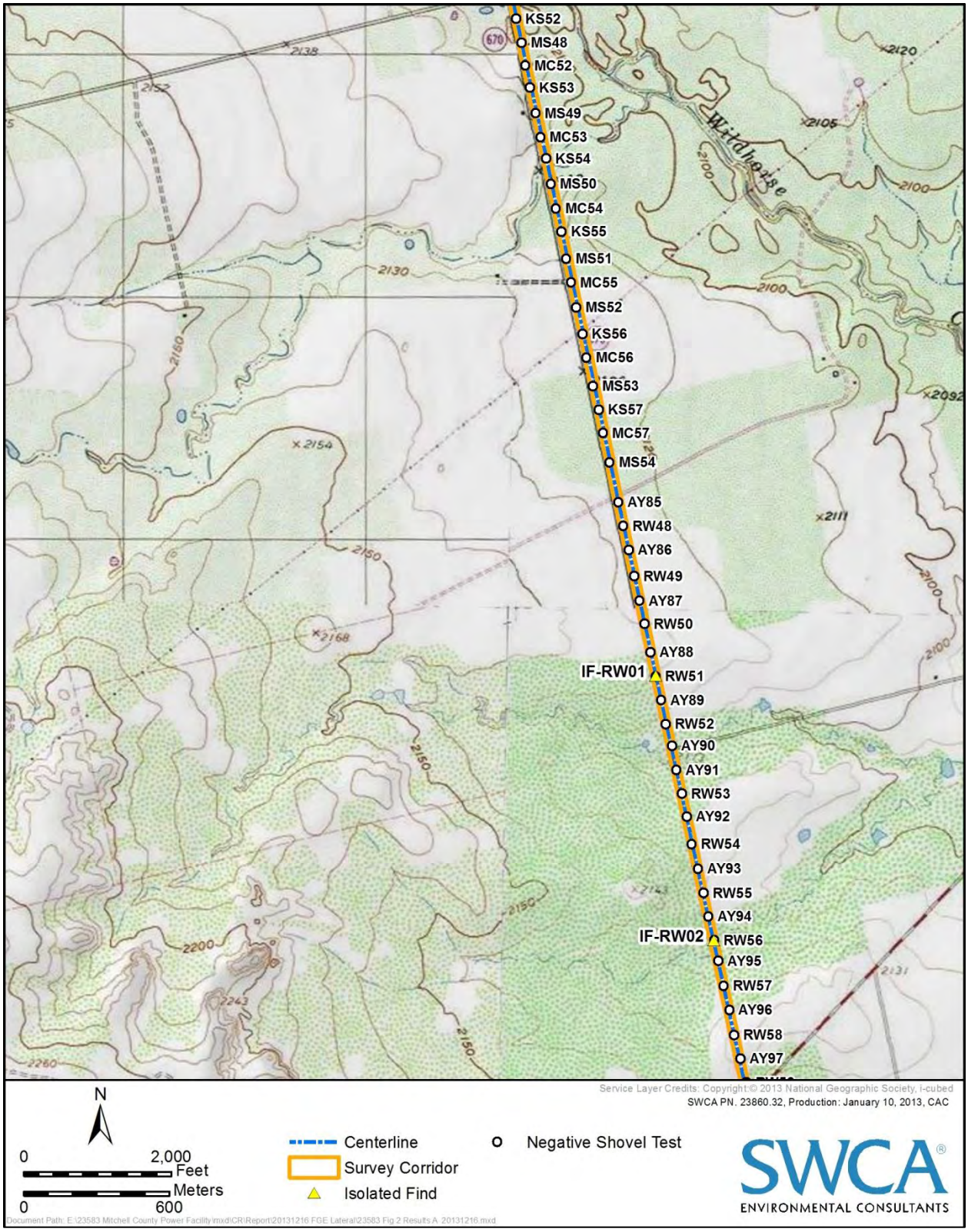

Figure 2B. Survey results map.

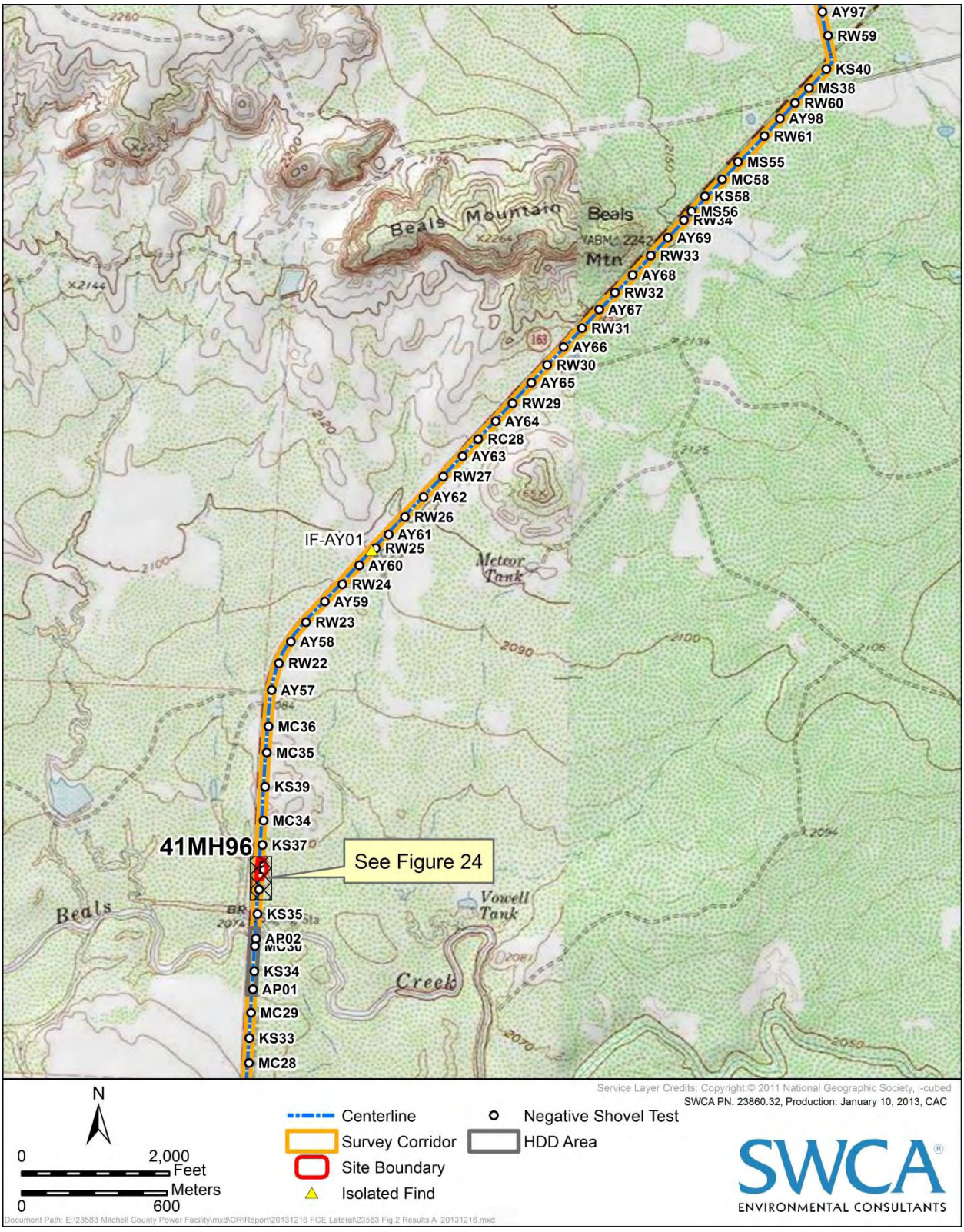

Figure 2C. Survey results map.

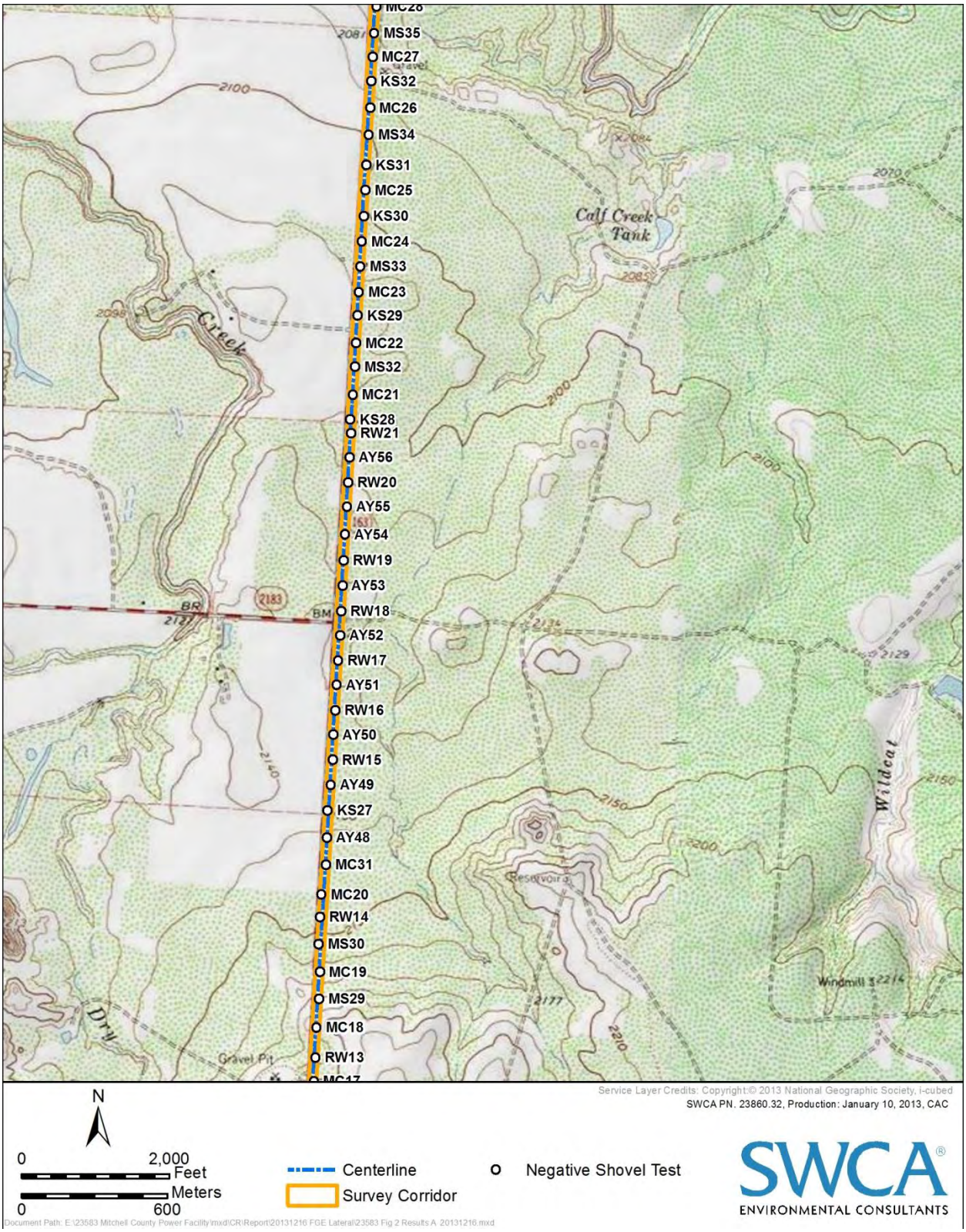

Figure 2D. Survey results map.

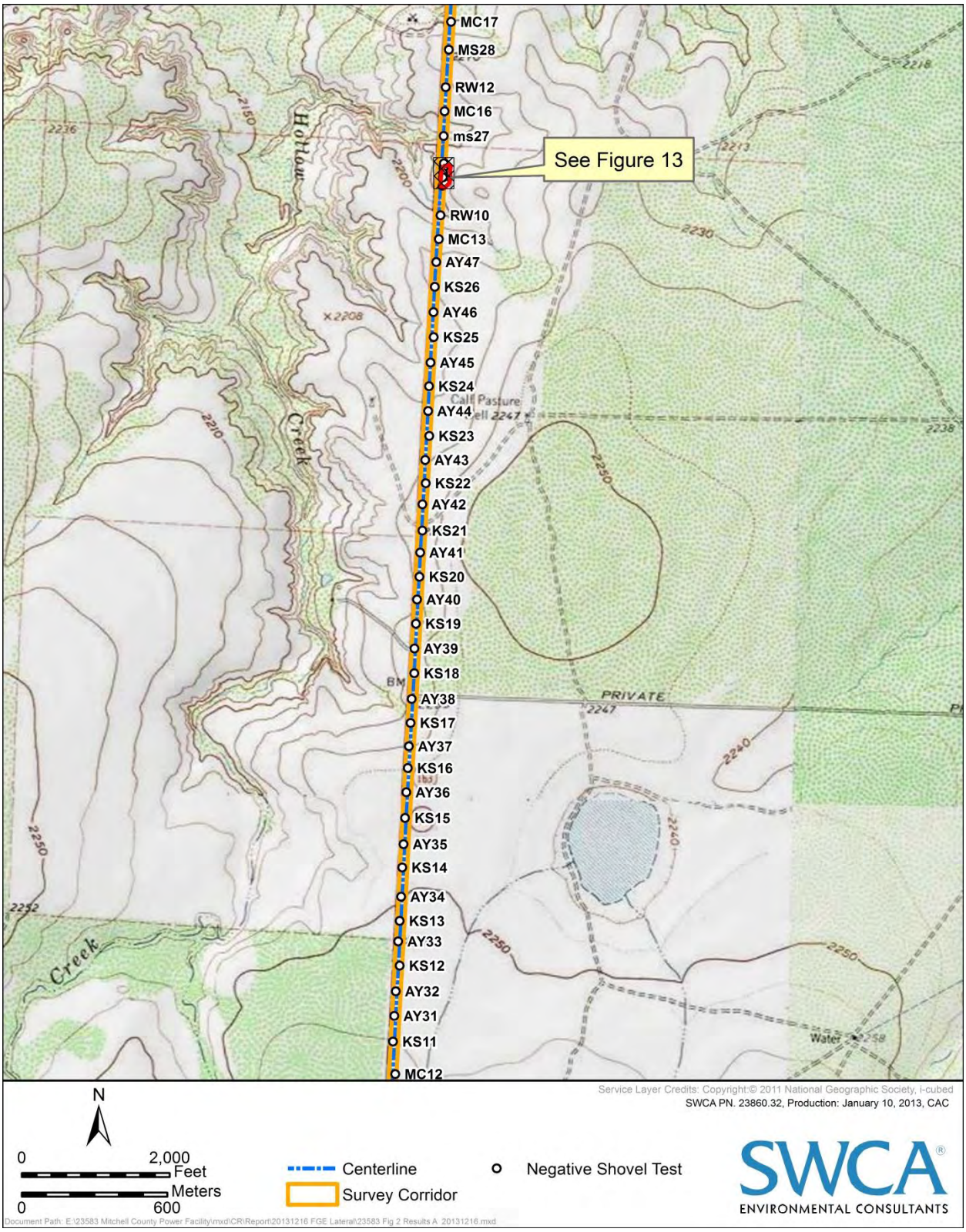

Figure 2E. Survey results map.

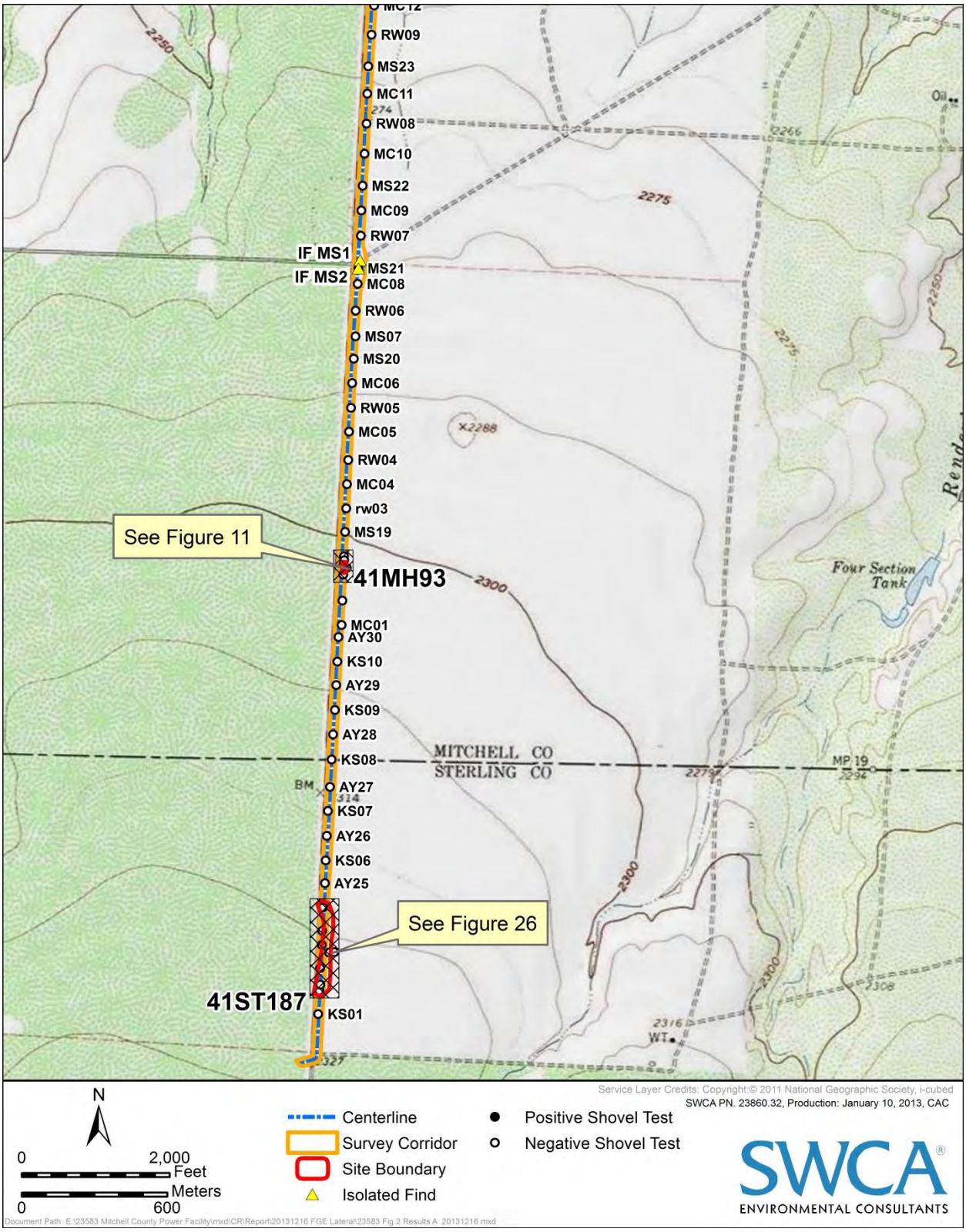

Figure 2F. Survey results map.

Figure 3. Proposed SWD line area through a heavily terraced agricultural field.

Figure 4. Cotton crop within the gas pipeline APE on the north side of CR 262, facing east.

Figure 5. Portion of the Highway 163 ROW, facing south.

Figure 6. Portion of the Highway 163 ROW cut below grade, facing north.

Figure 7. Bridge embankment within the APE along Highway 163, facing southwest.

Figure 8. Buried cable marker and bar ditch within APE, facing northwest.

Figure 9. Southern terminus of project area at an existing gas facility, facing south.

Figure 10. Graded fire break along the ROW fence line on Spade Ranch, facing north.

As such, the integrity of these areas has been compromised. Of note, almost all of the prehistoric artifacts associated with the newly recorded archaeological sites or documented as isolated finds (IFs) were encountered on the ground surface of the fire break.

Soils encountered throughout the project area consist primarily of brown to dark brown clay loam over compact, reddish brown clay with calcium carbonate nodules and filaments. The latter soil was typically reached at a depth of 30–50 cm below surface (bs) and the development of calcium carbonate nodules has been used by archaeologists as a proxy indicator of ancient soils that possibly predates human activity. As such, shovel tests were terminated once highly calcareous soil was encountered. In some areas, solid or indurated bedrock, either sandstone or limestone, was present (Appendix B).

Two auger probes (AP01 and AP02) were excavated on the south side of Beals Creek, due to the potential for deep Holocene-age soils in this area (Doering and McFaul 1991). Auger probe AP01, excavated at the south edge of the floodplain, encountered dense clay at a shallow depth that prevented deep investigation (Figure 2C, Appendix B). Auger probe AP02, however, excavated immediately south of the creek channel, encountered alluvial sediment to a depth exceeding 120 cmbs (Appendix B). The auger probe was terminated due to difficulty excavating the compact sediment; however, the cut bank of Beals Creek reveals continuous alluvial sediment through base of the channel (approximately 10 feet below the surface) that correlates with observations made by Doering and McFaul (1991). Due to the potential for deeply buried cultural material, SWCA recommends avoidance of the south bank of Beals Creek, for a distance of 300 m and to a depth of 12 feet below the surface (Figure 2C). FGE plans to avoid this area via HDD, and as such, no additional investigation is recommended for the current APE. Should the aforementioned area be impacted by future construction, mechanical trenching is recommended through the maximum depth of impact or Holocene-age soils, whichever is encountered first.

Five archaeological sites were documented as a result of the investigations. These include three sparse prehistoric lithic scatters (41MH93, 41MH94, and 41ST187), one twentieth century historic farmstead (41MH95), and one prehistoric campsite (41MH96). Site descriptions are as follows and the site forms, submitted to the Texas Archaeological Research Laboratory, are included in Appendix C.

SITE 41MH93

Site 41MH93 is a prehistoric lithic scatter, consisting of a sparse scatter of lithic debitage, two tested chert cobbles, and one chipped stone tool. The site is located near the southern portion of the project area approximately 2.42 miles south of the intersection of SH 163 and CR 353 in southwestern Mitchell County (Figure 2F). The site is situated on a gently undulating alluvial plain within a broad valley. The site measures 45 m north/south and 15 m east/west (Figure 11).

Vegetation consists of short grasses, immature mesquite trees, cacti, and small shrubs, which allowed for roughly 70 percent bare ground surface visibility across the site (Figure 12). A 20-foot-wide fire break and parallel fence line, trending roughly north/south, are within the western extent of the site, and the site is bound to the east by a dirt two-track road. Five shovel tests (MC02–03, MS17–18, and RW02) were excavated to determine potential for subsurface cultural deposits, of which one (MC02) was positive for cultural material (Appendix B). Shovel test MC02 revealed one secondary chert flake at a depth of 0–20 cmbs. Soil on the site consists of very dark brown clay loam over brown clay with calcium carbonate nodules and filaments at a depth of 40–45 cmbs where the excavations terminated.

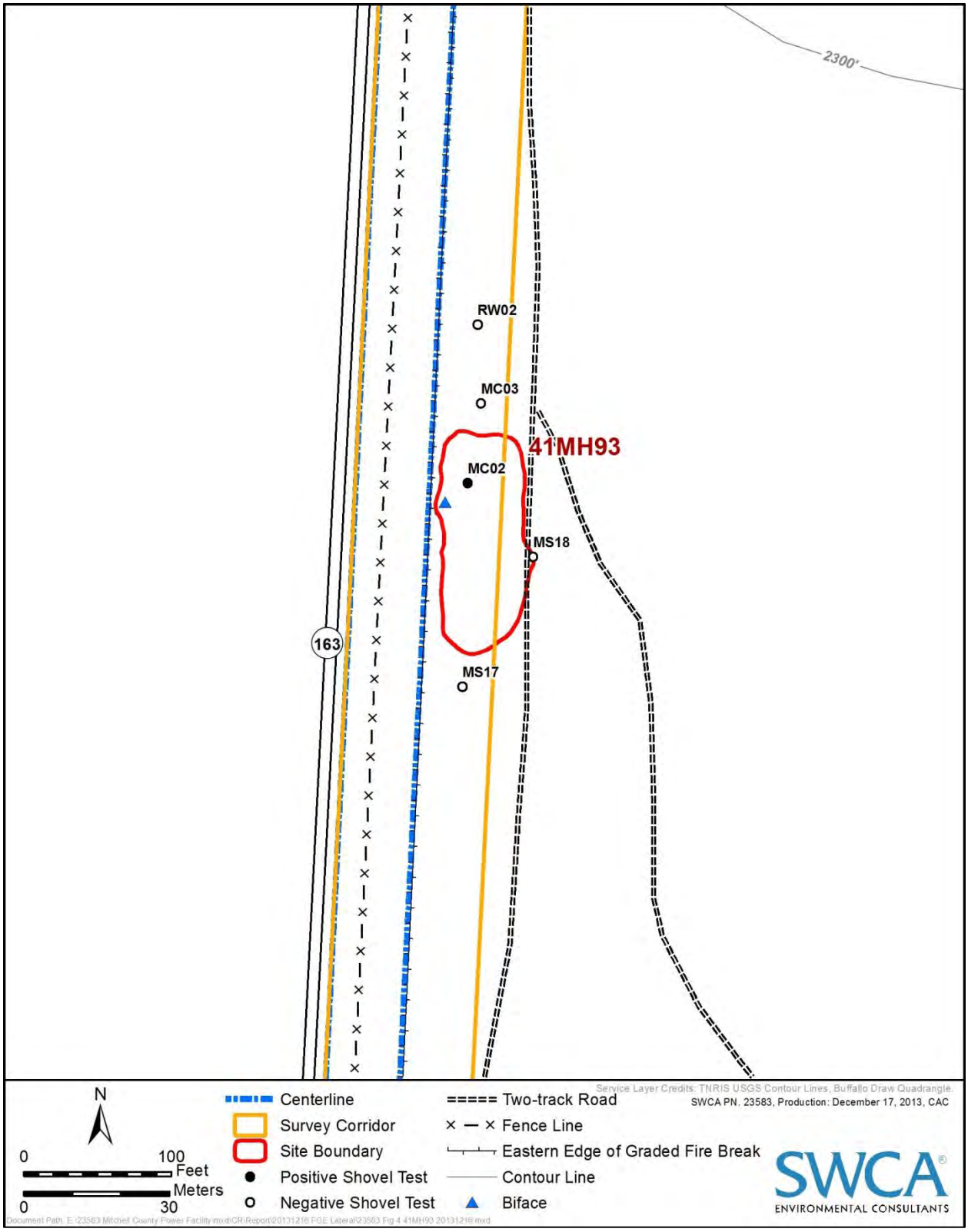

Figure 11. Site 41MH93 map.

Figure 12. Site 41MH93 area overview, facing north.

Although one flake was recovered from the upper 20 cm of shovel test MC02, all additional subsurface investigations were negative for cultural material. The site boundary was, therefore, determined by the location of the single positive shovel test and the results of intensive pedestrian surface inspection. Artifacts noted on the ground surface include approximately 5–10 chert flakes, one early-stage chert biface, and two tested chert cobbles. No temporally diagnostic tools or features were encountered, and no burned rock was noted.

SUMMARY

Site 41MH93 is a sparse prehistoric lithic scatter with artifacts consisting of lithic debitage, tested cobbles, and one early-stage biface. Of the five shovel tests excavated in the site area, one was positive for cultural material at a depth of 0–20 cmbs. All remaining artifacts observed in the site area were limited to the ground surface, and all shovel tests revealed ancient clay with calcium carbonate nodules and filaments at 40–45 cmbs.

Due to the absence of diagnostic artifacts or features, the paucity of artifacts, and lack of intact, buried cultural deposits, 41MH93 is considered to have low research value. Additionally, given the amount of prior disturbance within and around the site, there is a low probability that the site will provide any significant information about the prehistory of the area. Therefore, site 41MH93 is recommended as not eligible for listing as an SAL or for inclusion to the NRHP under Criterion D. No further work is recommended.

SITE 41MH94

Similar to 41MH93, site 41MH94 is a sparse prehistoric lithic scatter, consisting of debitage, three chipped stone tools, and one possible hammerstone. The site is located immediately east of Highway 163, 1.58 miles south of the Ranch Road 2183/Highway 163 intersection in southwestern Mitchell County (Figure 2E). The site is situated atop a low ridge overlooking an unnamed tributary of Dry Hollow Creek to the north and measures roughly 35 m east/west by 95 m north/south (Figure 13).

Vegetation consists of scattered mesquite scrub, juniper, and short grasses which permitted roughly 90 percent bare ground surface visibility across the site (Figure 14). Abundant gravels are visible on the ground surface and a north/south-trending, graded fire break is located within the western portion of the site. Six shovel tests (MC14–15, MS24–26, and RW11) were excavated to determine potential for subsurface deposits, all of which were negative for cultural material (Appendix B). Soil on the site consists of brown sandy loam and clay with gravels and calcium carbonate nodules. All tests were terminated at sandstone bedrock at a depth of 3–10 cmbs.

As all shovel tests were negative for cultural material, the site boundary was determined through the extent of surface artifacts. The cultural assemblege noted on the ground surface includes 10–15 flakes, one edge-modified chert flake, one chert scraper, one chert core, and one possible hammerstone near shovel test MC15. The flakes are composed of a tan chert with light gray banding and a faint patina. The possible hammerstone is composed of a light grayish brown, oblong-shaped quartzite river cobble with a few chips on one edge that may be a result of utilization. No temporally diagnostic tools, burned rock, or cultural features were encountered.

SUMMARY

Site 41MH94 is a sparse and diffusely distributed prehistoric lithic scatter with artifacts consisting of consisting of debitage, three chipped stone tools, and one possible hammerstone. Six shovel tests were excavated in the site area, all of which were negative for cultural material. As such, all artifacts are limited to the ground surface and all shovel tests encountered sandstone bedrock at a depth of 3–10 cmbs.

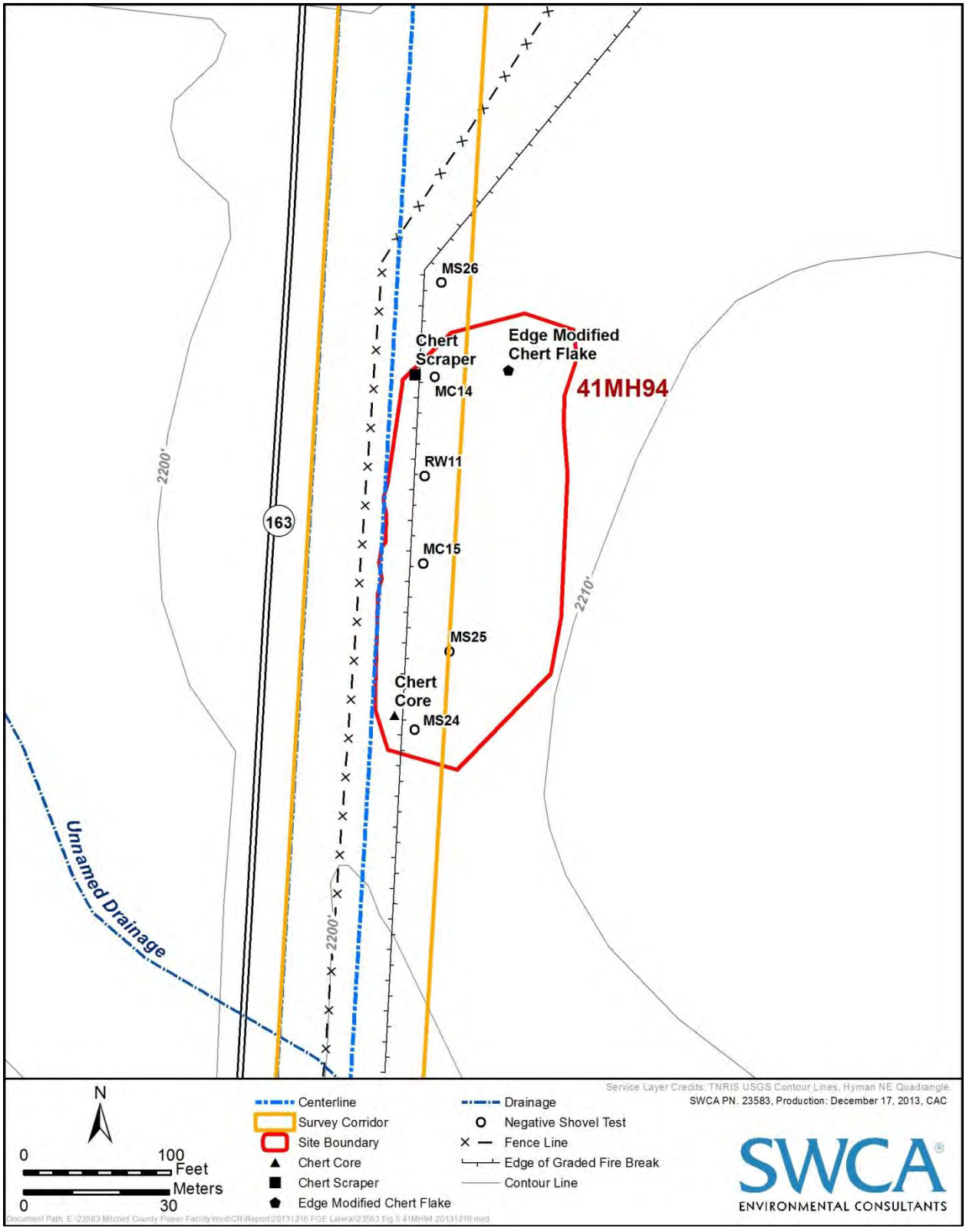

Figure 13. Site 41MH94 map.

Figure 14. Site 41MH94 area overview, facing north.

Due to the absence of diagnostic artifacts or features, the paucity of artifacts, and lack of intact, buried cultural deposits, 41MH94 is considered to have low research value. Additionally, given the amount of prior disturbance within and around this surficial site, there is a low probability that 41MH94 will provide any significant information about the prehistory of the area. Therefore, site 41MH94 is recommended as not eligible for listing as an SAL or for inclusion to the NRHP under Criterion D. No further work is recommended.

SITE 41MH95

Site 41MH95 is an historic farmstead located in the northern portion of the project area, immediately east of FM 670 and 1.06 miles south of the FM 670/CR 262 intersection (Figure 2A). The property is in the northwest corner of Block 28S of the north half of Section 26 of the Texas and Pacific Railway Company Survey, owned by Mr. Max Caswell. The site consists of several built resources and associated household debris, and measures 130 m north/south by 40 m east/west (Figure 15).

The site is situated within a moderately wooded lot with an open agricultural field to the east and FM 670 to the west. Vegetation consists of dense pockets of high grasses and mesquite, interspersed with areas of bare ground (Figure 16). A dirt lot used for hay storage is located to the north, and an overhead power line traverses the northernmost portion of the site. Seven shovel tests (AY82–84, KS43, MC47, and RW46–47) were excavated to determine potential for subsurface deposits, four of which were positive for cultural material (AY84, KS43, MC47, and RW47) to a maximum depth of 30 cmbs (Appendix B). Soil on the site consists of brown sandy loam over brown to reddish-brown sandy loam or sandy clay with calcium carbonate nodules at a depth of 30–50 cmbs. Shovel tests were terminated at the underlying, sterile soil.

Artifacts encountered within the four positive shovel tests include one metal button, wire fragments, wire nails, one porcelain doll leg, one copper cap, one copper washer, window glass, clear bottle glass, and miscellaneous metal fragments (Appendix B). The button, recovered in shovel test KS43 has a backmark that reads, "WEST," at the top, with another, partial word at the bottom (Figure 17). Due to the corroded state of the button, no manufacturer, functional, or temporal association could be determined. Additional artifacts noted on the ground surface include clear, milk, and aqua glass shards, porcelain fragments, whiteware fragments, stoneware fragments, railroad timbers, corrugated metal, barbed wire, a wooden trailer, metal can fragments, and miscellaneous metal fragments.

Built resources located on the site include a collapsed barn (Resource 1), a corral (Resource 2), a concrete cattle trough (Resource 3), a well pump and cistern (Resource 4), and a windmill tower (Resource 5) (see Figure 16). A house or house foundation was not discovered at the site, despite oral history evidence that one was present in the 1930s. According to Mr. Caswell, the house was no longer present by the time he purchased the property sometime around 1961 (Max Caswell, personal communication 2013). Based on roadway modification that served to lessen a curve in FM 670 at this location (apparent change between the 1952 and 1978 Westbrook topographic quadrangles), it seems likely that the house was demolished at that time.

Resource 1 is a small collapsed barn built in the 1920s or 1930s (Figure 18). The barn is in poor condition and is currently a ruin. It was constructed from wide wood planks and had a corrugated metal gable roof. Adjacent to the barn is Resource 2, a corral also built in the 1920s or 1930s (Figure 19). The corral is constructed from thick vertical wood posts, horizontal wood rails, and box wire. It is in fair to poor condition. Sections of the corral fencing are no longer upright, and the wood has deteriorated. The small size of both the barn and the corral suggest that they were not intended for cattle but instead were built to house smaller livestock.

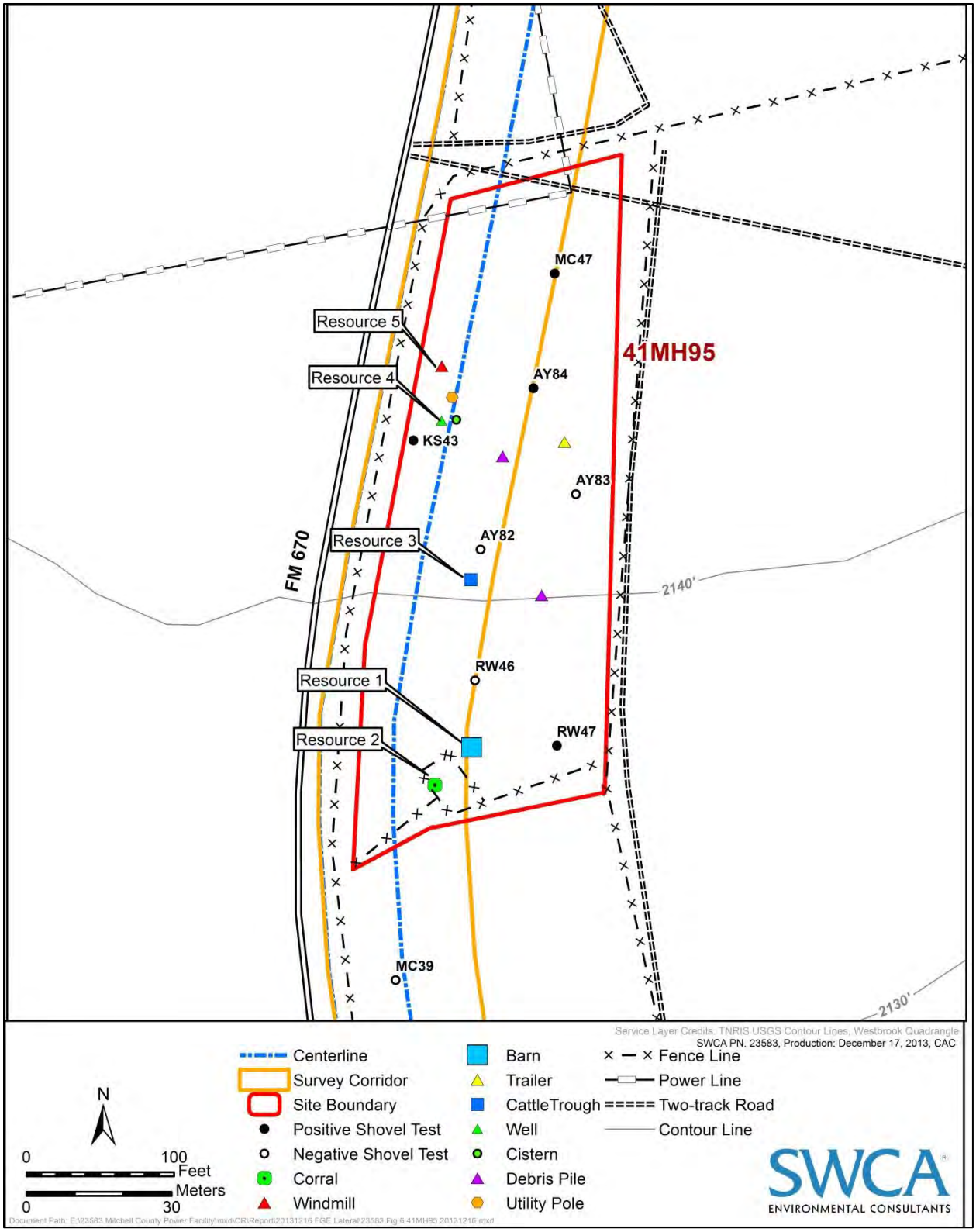

Figure 15. Site 41MH95 map.

Figure 16. Site 41MH95 area overview, facing south.

Figure 17. Site 41MH95; backmark on metal button recovered in shovel test KS43.

Figure 18. Site 41MH95; Resource 1, collapsed barn facing south.

Figure 19. Site 41MH95; Resource 2, corral facing east.

At the center of the site is Resource 3, a concrete water trough inscribed with the date "1927" (Figures 20 and 21). The trough measures 12 feet square and is constructed from poured concrete with a rough aggregate and a smooth concrete finish. Interestingly, horseshoes and muleshoes were used to reinforce the concrete instead of rebar. The trough is in poor condition, with extensive cracking and spalling. Roughly 100 feet north of the trough is Resource 4, a well and cistern (Figure 22). The well has a small electric pump that was powered via a nearby utility pole. According to Max Caswell, the well was operational in the 1930s; however, he attached the electric well pump subsequent to 1961, at which time the water was non-potable (personal communication 2013), ostensibly due to an increased number of water wells in the area. The cistern was a cylindrical metal tank with reinforcing concrete in its base. The tank sat atop a low wood-framed platform. Currently, the cistern is in poor condition and the tank has collapsed, leaving its concrete base exposed, and the wood platform has deteriorated.

Resource 5 is a steel windmill tower (Figure 23). It is of historic age but was brought to the site and left in its current location in the 1960s by the current land owner. Due to the diminished utility of the well, it was never used on the site (Max Caswell, personal communication 2013). The site also contains debris such as railroad ties, a broken flatbed trailer, and trash piles. The railroad timbers were likely brought to the property sometime in the 1960s, as Mr. Caswell previously worked for the railroad (Max Caswell, personal communication 2013). The wooden, flatbed trailer was also added to the site sometime after the 1960s by an individual who leased and farmed the land for 19 years (Max Caswell personal communication 2013).

PROPERTY HISTORY

Although the vacant farmstead cluster is currently owned by Max Caswell, the historic resources were constructed by a previous owner. According to Mr. Caswell, he purchased the land from the Hunter family in approximately 1961. Records verifying that transaction date were not located, but deed research confirms that the Hunter family owned the land during the historic period. Since the structures at the site were primarily constructed during the 1920s and 1930s, research focused on determining ownership during that period.

The 312.5 acres historically conveyed as two separate parcels; an eastern 100-acre tract and a western 212.5-acre tract. It is the larger western tract that contains the farmstead. In 1916, a Mr. James P. Hunter (also referred to as J.P.) paid off the final installment of a loan on the 212.5-acre tract and owned it outright from the previous owner Mr. C.E. or C.N. Webb (Mitchell County deed book 42, page 528). James Hunter was born in Missouri in 1882. Before 1916 he was married to Alice J. Hunter of Missouri and was working as a merchant in a general retail establishment in Collin County, Texas (Collin County census records, 1910). Unfortunately, James Hunter died in 1919 and his wife Alice was left to run the family farm. The 1920 census records list Alice (referred to as Mrs. J.P. Hunter) as a farmer, and two of her sons as laborers, including 26-year old William A. Hunter (Mitchell County census records, 1920).

Alice J. Hunter tried unsuccessfully to sell the land in 1923, when she set up a nine-installment loan with J.M. Rogers (Mitchell County deed book 60, page 116). By 1930, however, Rogers had defaulted on the loan and the property remained with Alice (Mitchell County deed book 80, page 34). In 1930, she was no longer farming. Census records show Alice boarding in town with her daughter and druggist son-in-law (Mitchell County census records, 1930). Because of this, the 1920 census is the only record showing that the Hunter family farmed land in Mitchell County. In the 1930 and 1940 census records, none of the Hunters are listed as farmers; they instead include a fireman, laborer, cook, and a grocery store manager. By 1930, William A. Hunter, who labored on the farm in 1920, was living with his wife Jemima in nearby Scurry, Texas (Kaufman County census records, 1930).

Figure 20. Site 41MH95; Resources 3, concrete cattle trough facing northeast.

Figure 21. Site 41MH95; date of "1927," etched into the top of Resource 3.

Figure 22. Site 41MH95; Resource 4, elevated cistern platform (well is not visible due to tall grass).

Figure 23. Site 41MH95; Resource 5, windmill tower facing south.

By 1935, William and Jemima moved to Coahoma, Texas, where he worked as a manager of the telephone exchange and she worked as a telephone operator (Howard County census records, 1940). They remained in Coahoma until at least 1948 (Big Spring city directory). Alice J. Hunter continued to live in town until her death in 1945. Despite the fact that no member of the Hunter family appeared to be living on the 212.5-acre tract, they continued to own it. It is possible that they leased the land some time before 1930, but records to this effect were not found.

William A. Hunter became owner of the 212.5-acre parcel some time after his mother's death in 1945. Records of the transaction were not located. In 1947, he expanded his holdings by purchasing the eastern 100-acre tract from C.W. and Alice Plaster (Mitchell County deed book 125, page 479). A ROW sale record shows that William A. Hunter owned the entire 312.5-acre tract in December of 1961. On the deed record he handwrote, "This is in part of my homestead" (Mitchell County deed book 208, page 9). This contradicts the other information that suggests he did not live at the property. Regardless, it can be assumed that the farmstead at the site was occupied by James P. or Alice J. Hunter between about 1916 and 1930. Whether the land was then farmed by their children or by tenants is not known. Mr. Max Caswell likely purchased the property shortly after 1961.

SUMMARY

Site 41MH95 is an historic farmstead dating to the early- to mid-twentieth century. The house location was not encountered but extant historic resources are present that include a collapsed barn, a corral, a concrete cattle trough, a well and cistern, and a steel windmill tower. A flatbed trailer and railroad timbers were brought to the site (along with the windmill tower and electric well pump) sometime after 1961 (Max Caswell, personal communication 2013). The observed artifact assemblage is contemporaneous with the built resources and consists of typical household domestic debris. Four of the seven shovel tests excavated on the site were positive for cultural material to a maximum depth of 30 cmbs (Appendix B).

Because of the severely deteriorated condition of its individual resources, the farmstead cluster has lost its integrity of design, setting, materials, workmanship, and feeling. The farmstead cluster is no longer able to convey its historic character and does not display distinctive or representative architectural design. It is not associated with significant events or people and is unlikely to yield important or beneficial information in history or prehistory. Based on the results of shovel testing on site 41MH95, there is a low probability that the buried cultural material will provide any significant information about the early- to mid-twentieth century history of the area. Because of these factors, site 41MH95 is recommended as not eligible for listing as an SAL or for inclusion on the NRHP under all criteria. No further work is recommended.

SITE 41MH96

Site 41MH96 is a prehistoric open campsite, consisting of lithic debitage, one modified flake, and burned rock fragments. The site is located in the central portion of the project area, approximately 2.05 miles north of the intersection of Highway 163 and Ranch Road 2183 in southwestern Mitchell County (Figure 2C). The site is situated in the broad floodplain of Beals Creek approximately 175 m north of the main channel. The site measures 85 m north/south by 30 m east/west (Figure 24).

Vegetation consists of patchy short grasses and cacti with sparse immature mesquite trees, which allowed for 70 percent bare ground surface visibility across the site at the time of survey (Figure 25). A roughly 20-foot-wide graded fire break traverses the western half of the site, and a dirt two-track road crosses through the southern portion of the site. Six shovel tests (KS38, MC31–33, and MS36–37) were excavated to determine potential for subsurface deposits, all of which were negative for cultural material (Appendix B). Soil on the site consists of dense, brown clay loam with compact soils reached at depths ranging from 30–60 cmbs.

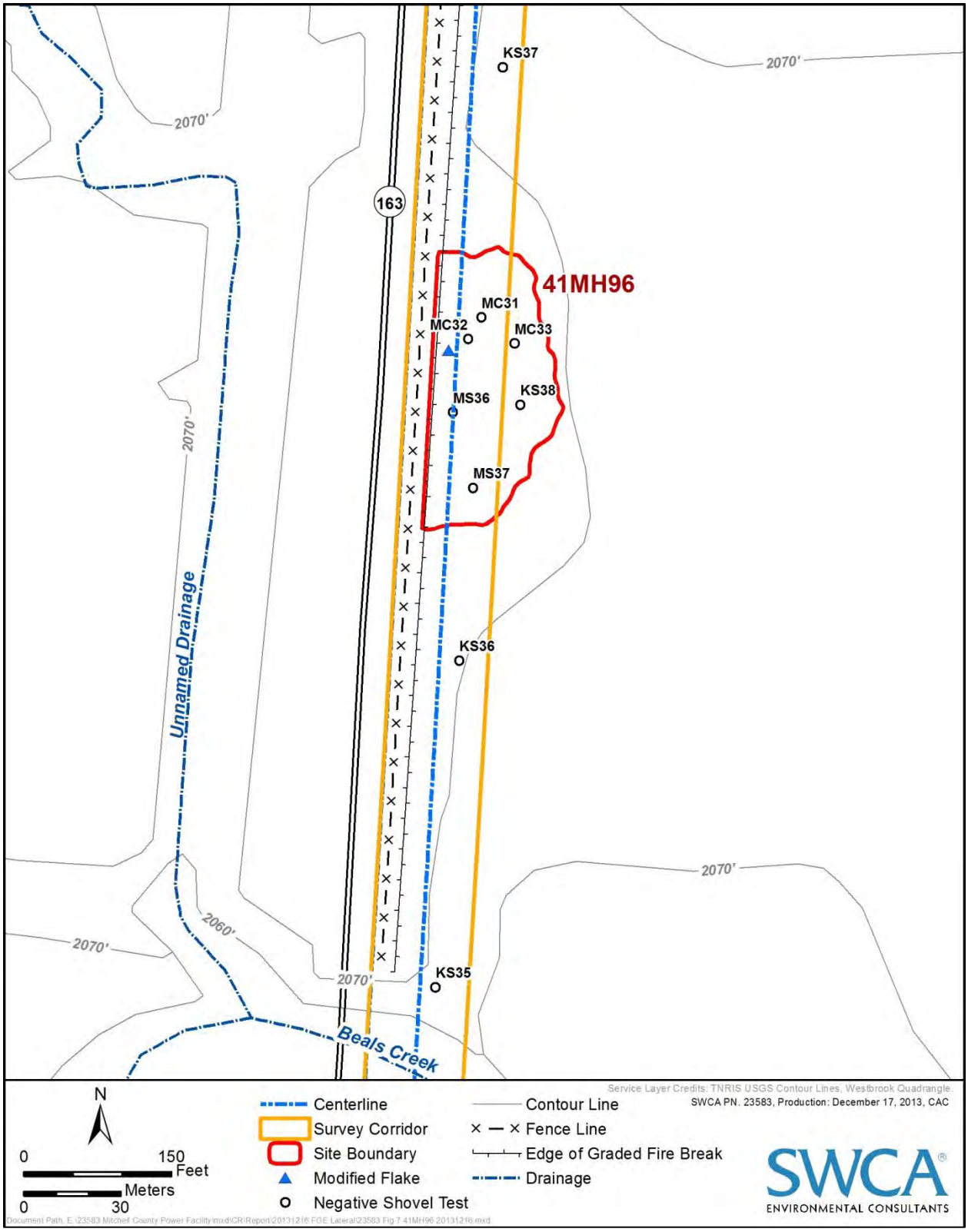

Figure 24. Site 41MH96 map.

Figure 25. Site 41MH96 area overview, facing south.

As all shovel tests were negative for cultural material, the site boundary was defined based on the extent of artifacts on the surface. The observed cultural assemblage includes ten chert flakes, one modified flake, and five burned rock fragments. The debitage is composed of tan chert flakes, some of which exhibits a heavy patina indicating exposure on the ground surface. The burned rock fragments were scattered, primarily near the fire break, with no observed staining, clustering, or concentrations noted. Considering the proximity of the fire break it is indeterminate if the scattered burned rocks are prehistoric or more recent in origin. Additionally, most of the artifacts observed on the site were within or adjacent to the graded fire break. No temporally diagnostic tools or intact cultural features were encountered.

SUMMARY

Site 41MH96 is a purely surficial, prehistoric open campsite consisting of a sparse quantity of scattered and fragmented artifacts. The assemblage consists of chert flakes, one modified flake, and burned rock fragments, most of which were observed in a disturbed context. None of the six shovel tests excavated in the site area were positive for cultural material and all encountered very compact, mottled clay.

Based on the lack of temporally diagnostic tools or features, paucity of artifacts, and lack of buried cultural deposits, 41MH96 is considered to have low research value. Additionally, given the extensive disturbance within and around the site, there is a low probability that the site will provide any significant or new information about the prehistory of the area. Therefore, site 41MH96 is recommended not eligible as an SAL or for inclusion to the NRHP under Criterion D. No further work is recommended.

SITE 41ST187

Site 41ST187 is a sparse prehistoric lithic scatter consisting of debitage and chert shatter. The site is located near the southern terminus of the project area approximately 3.4 miles south of the intersection of Highway 163 and CR 353 in north-central Sterling County (Figure 2F). The site is situated on an ancient alluvial plain within a broad valley. The site measures 395 m north/south by 70 m east/west (Figure 26).

Vegetation consists of sparse mesquite trees, patchy short grasses, and prickly pear cacti, affording roughly 75 percent bare ground surface visibility across the site. A roughly 20-foot-wide, graded fire break and faint two-track road trend north/south through the western half of the site area (Figure 27). The fire break is lined on either side by small berms of displaced earth and uprooted vegetation. Eight shovel tests (AY21–24 and KS02–05) were excavated to determine the potential for subsurface cultural deposits, all of which were negative for cultural material. Soil on the site consists of dark brown clay loam overlying reddish-brown clay with small calcareous inclusions at a depth of 40 cmbs. Shovel tests were terminated at this depth due to the prevalence and size of calcium carbonate nodules.

As all shovel tests were negative for cultural material, the site boundary was determined by the extent of artifacts on the surface. The cultural assemblage noted on the ground surface includes one tested chert cobble, five secondary chert flakes, one primary chert flake, and four tertiary chert flakes. The debitage is composed of a light grayish brown to tan chert that exhibits a slight patina. More than 50 pieces of chert shatter were also noted on the surface, although the majority of this shatter appears to have been fractured from recent surface grading. No temporally diagnostic tools or features were encountered, and no burned rock was noted.

SUMMARY

Site 41ST187 is a sparse surficial scatter of prehistoric lithic debitage observed within a heavily disturbed context. The artifacts consist entirely of chert flakes with no chipped stone tools, temporally diagnostic tools, burned rock, or cultural features present. None of the eight shovel tests excavated in the site area were positive for cultural material and all encountered abundant calcium carbonate filaments and nodules.

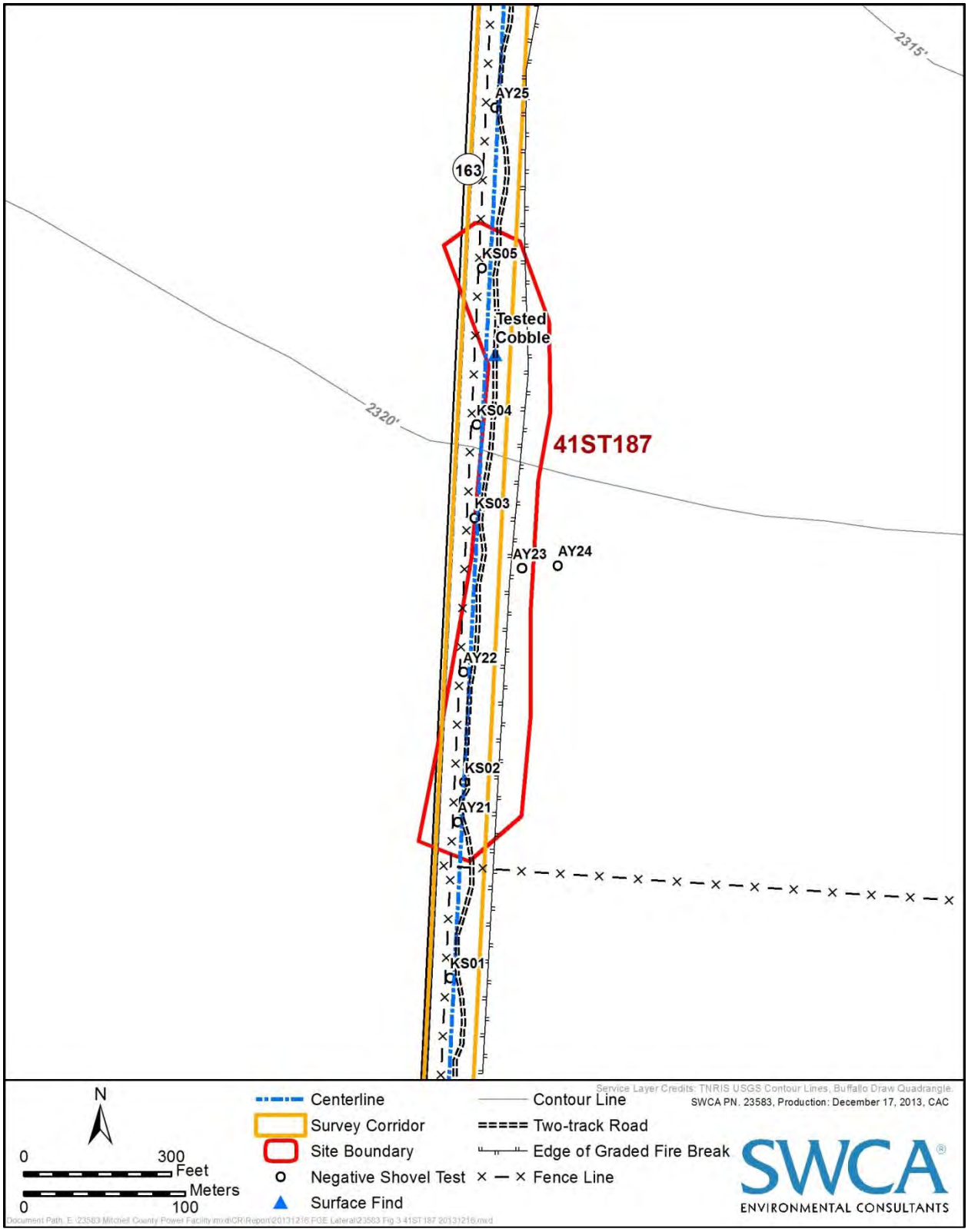

Figure 26. Site 41ST187 map.

Figure 27. Site 41ST187 area overview, facing south.

Based on the absence of temporally diagnostic tools or features, subsurface cultural deposits, and a general paucity of artifacts, the site is considered to have low research potential. Additionally, surface grading and vehicular traffic have severely impacted the area and the site, therefore, has a limited potential to provide any significant information about the prehistory of the area. As such, site 41ST187 is recommended as not eligible for listing as an SAL or for inclusion to the NRHP under Criterion D. No further work is recommended.

ISOLATED FINDS

IFs consist of artifacts or features encountered within in APE that did not warrant documentation as archaeological sites due to an absence of additional cultural material. Within the APE, a total of five IFs were encountered on the ground surface. Four of these are prehistoric in nature, consisting of two modified flakes (IF RW01 and RW02), one biface fragment (IF MS02), and one biface and flake (IF AY01). IFs RW01 and RW02 are chert flakes that exhibit modification of a single edge, either as a result of use wear or retouch (Figures 28 and 29). One tertiary flake was also found on the surface in the RW02 location. IF MS02 is a chert biface fragment that was found of the surface near MS01, an agricultural feature (see below; Figure 2F). The final prehistoric IF, AY01, consists of one chert biface and a chert flake that were encountered in close proximity to one another. The biface is likely a knife or preform that measures 7.5 cm long by 2 cm wide and 1.5 cm thick (Figure 30). It is triangular and elongate with a rounded base that has not been thinned. One chert flake was also encountered on the surface, however, no additional artifacts were present on the surface or in nearby shovel test RW25 (Figure 2C).

Finally, IF MS01 is a standing Aermotor windmill and concrete cistern (Figures 2F and 31). The windmill is actively pumping water and both the windmill and cistern are maintained. The windmill tower is made of steel and the sucker rod had been extended with several wooden 2 × 4–inch boards. The active well casing is surrounded by a 50-gallon drum filled with coarse-aggregate concrete at the surface. The cylindrical cistern measures roughly 12 feet in diameter by 5.5 feet tall. The walls of the cistern are 4 inches wide and, at the time of survey, the cistern was filled to capacity. A previous well head (a poured concrete square surrounding a steel casing) is located within a few feet of the active well, suggesting that it was re-drilled at some point. No inscriptions or markings were observed to indicate a time of construction or maintenance. As Aermotor windmill design has remained essentially unchanged since the early twentieth century, it is difficult to assign an exact date to the feature; however, based on the fair condition of the windmill and cistern, it likely dates to the mid-twentieth century. No historic artifacts were found in the area and the feature is strictly utilized for agricultural purposes. Investigators surveyed a 200-foot-wide corridor in this location to allow for a shift to the east, should it be deemed necessary due to landowner request. At each IF location, no additional artifacts were encountered on the surface or within nearby shovel tests.

SUMMARY AND RECOMMENDATIONS

On behalf of FGE, SWCA conducted an intensive cultural resources survey of a 1,000-foot long SWD line and an 18-mile-long proposed gas pipeline associated with the FGE Texas Project in Mitchell and Sterling Counties, Texas. Archaeological investigations were conducted in accordance with Section 106 of the NHPA of 1966 (as amended) as well as the Antiquities Code of Texas.

This addendum report regards the cultural resources investigations of additional facilities that were added to the FGE Texas Project (Stotts et al. 2013). Those investigations and recommendations were conducted under Antiquities Permit #6402, and were concurred upon in June 2013. The current project involves ancillary elements that have been added to the project that will tie in to the FGE plant. This addendum report covers the investigations of those additional facilities that were also conducted under Antiquities Permit #6402, with Judith R. Cooper serving as Principal Investigator.

Figure 28. IF RW01, modified flake.

Figure 29. IF RW02, modified flake and tertiary flake.

Figure 30. IF AY01, elongate biface, possibly a preform or knife.

Figure 31. IF MS01, operational windmill and cistern on the Spade Ranch.

The proposed SWD line extends from FGE property to the west, across CR 266 and onto private land. The proposed gas pipeline is located on FGE property and within the ROWs of county and state-managed roadways. It extends approximately 18 miles from the proposed FGE Texas Project site in central Mitchell County to an existing gas facility in northern Sterling County. The APE is defined as the entire project area, consisting of a 100-foot-wide easement for the gas pipeline and a 50-foot-wide easement for the SWD line, totaling 219.33 acres. The depth of impact has not yet been determined but is not likely to exceed 6–8 feet with the exception of HDD locations. SWCA's cultural resource investigations included a background review and an intensive pedestrian survey with subsurface investigations.

The background review determined that the majority of the project area has not been previously surveyed, although the FGE Texas Project tract was the subject of a 2013 survey conducted by SWCA (Stotts et al. 2013). One archaeological site, 41MH90, was documented as a result of this survey, located 30 m east of the CR 266 ROW, outside the current project area. Site 41MH90 consists of 11 historic resources including six standing structures. The site was not recommended as eligible for listing as a SAL or for inclusion in the NRHP under any criteria based on its poor condition, compromised integrity, and lack of association with significant individuals. The current investigation verified that no portion of the site extends into the gas pipeline APE. No other archaeological surveys have been conducted within 1 mile of the project area. One OTHM (4759) is located on the south side of CR 262, just west of CR 266. This marker, erected in 1972, signifies the site of the Conaway School and is not within the APE for this project.

The 1952 Westbrook USGS 7.5-minute topographic quadrangle depicts two structures in the newly documented location of 41MH95, one of which is no longer present on the 1978 map revision. A review of the TxDOT Historic Overlay maps did not identify historic-age structures in or near the project area. The 1854 Marcy Map of the Brazos and Big Wichita Rivers indicates a wagon road "From Dona Ana, NM to Ft. Smith Ark. In 1849," intersecting the project area near the current location of CR 262 (Foster et al. 2006). Additionally, the 1867 Holtz Map of Texas depicts "Lt. Michlers route to Ft. Washita in 1849" intersecting the proposed route near the current intersection of CR 670 and Highway 163. No additional cultural resources were noted. No evidence of historic trails was observed in the APE during the survey.

The THC survey standards for this project necessitated the excavation of at least 291 shovel tests within the APE. Despite relatively high bare ground surface visibility (greater than 50 percent) and frequent disturbance, a total of 293 shovel tests and two auger probes were excavated, thus exceeding the THC's minimum survey standards. Only five shovel tests were positive for cultural material at less than 30 cmbs. Overall, the project area is characterized by rolling uplands with loamy soil over relatively shallow, ancient soil with gravels and calcium carbonate. Cultural material was largely limited to surficial and shallow contexts, and disturbance due to existing utilities; roadway construction and maintenance; plowing; fence line construction; construction of a firebreak; and sheet erosion is prevalent within the APE.

Five archaeological sites were documented as a result of the investigations. These include three sparse prehistoric lithic scatters (41MH93–41MH94 and 41ST187), one historic twentieth century farmstead (41MH95), and one prehistoric campsite (41MH96). None of these sites are recommended as eligible for listing as an SAL or for inclusion in NRHP based on the poor condition, compromised integrity of many of the resources, and in the case of 41MH95, lack of association with significant individuals. Because of the severely deteriorated condition of its individual resources, the farmstead cluster has lost its integrity of design, setting, materials, workmanship, and feeling. A total of five IFs were also recorded, of which four are prehistoric and one is historic. Investigations around the IFs indicated no association with other cultural materials or an archaeological site.

Based on the results of the current survey effort, no significant cultural resources will be affected by any construction activities within the 1,000-foot-long SWD line APE or 18-mile-long proposed gas pipeline APE associated with the FGE Texas Project. Due to the potential for deeply buried cultural deposits in the area immediately south of Beals Creek, FGE plans to cross this area using a horizontal directional drill for a distance of 300 m, thus avoiding impacts. If future construction occurs immediately south of Beals Creek that differs from the currently proposed project then further investigations are recommended; specifically, deep, mechanical excavation (e.g., backhoe trenching) to determine the presence/absence of deeply buried cultural deposits. With these stipulations, SWCA recommends that a determination of *No Historic Properties Affected* be granted for the project to proceed as planned.

REFERENCES

(Atlas) Texas Archaeological Sites Atlas
2012 Texas Archaeological Site Atlas restricted database, Texas Historical Commission. http://pedernales.thc.state.tx.us/. Accessed February 9, 2012.

Barnes, V. E.
1994 *Geologic Atlas of Texas, Big Spring Sheet*. The University of Texas at Austin, Bureau of Economic Geology.

Census Records, Collin County, Texas.
1910 Census Place: Justice Precinct 7, Collin, Texas; Roll: T624_1540; Page: 11B; Enumeration District: 0027.

Census Records, Howard County, Texas.
1940 Census Place: Coahoma, Howard, Texas; Roll: T627_4070; Page: 7B; Enumeration District: 114-13.

Census Records, Kaufman County, Texas.
1930 Census Place: Precinct 4, Scurry, Texas; Roll: 2389; Page: 9B; Enumeration District: 0011.

Census Records, Mitchell County, TX.
1920 Census Place: Justice Precinct 1, Mitchell, Texas; Roll: T625_1834; Page: 10A; Enumeration District: 154.

1930 Census Place: Precinct 1, Mitchell, Texas; Roll: 2377; Page: 7B; Enumeration District: 0003.

Chipman, D.E.
1992 *Spanish Texas 1519–1821*. University of Texas Press, Austin.

City Directory, Big Spring, Texas.
1948

Deed Records, Mitchell County, Texas
1916 Vol. 42, Page 528

1923 Vol. 60, Page 116

1930 Vol. 80, Page 34

1947 Vol. 125, Page 479

1961 Vol. 208, Page 9

Dixon, Marvin L., William H. Dittemore, Jr., and Harold W. Hyde
1973 *Soil Survey of Scurry County, Texas*. United States Department of Agriculture, Washington, D.C.

Doering, William and Michael McFaul
1991 4.0 Geomorphological Assessment. In: *A Cultural Resource Survey at Mitchell County Reservoir, Texas*. by Christopher Lintz, W. Nicholas Trierweiler, Fred M. Oglesby, William Doering, and Michael McFaul, pp. 29–36. Technical Report No. 433. Mariah Associates Inc. Austin, Texas.

Foster, T. R., T. Summerville, and T. Brown
2006 The Texas Historic Overlay: A Geographic Information System of Historic Map Images for Planning Transportation Projects in Texas. Prepared for the Texas Department of Transportation by PBS&J, Austin.

Hofman, J. L.
1989 Land of Sun, Wind, and Grass. In *From Clovis to Comanchero: Archeological Overview of the Southern Plains*. Jack L. Hofman, Robert L. Brooks, Joe S. Hays, Douglas W. Owsley, Richard L. Jantz, Murray K. Marks, and Mary H. Manheim. Arkansas Archeological Survey Research Series No. 35.

Natural Resource Conservation Service (NRCS)
2013 Web Soil Survey. Available at http://websoilsurvey.nrcs.usda.gov. Accessed November 12, 2013. U.S. Department of Agriculture (USDA).

Schwartz, Ralph L.
1992 *Soil Survey of Fisher County, Texas*. United States Department of Agriculture, Washington, D.C.

Stotts, Matthew C., Kevin Hanselka, and Kristen Brown
2013 *Cultural Resources Survey of the FGE Texas Project, Mitchell County, Texas*. SWCA Cultural Resources Report No. 13-128. Austin, Texas.

APPENDIX A

RESUME: PRINCIPAL INVESTIGATOR JUDITH R. COOPER

JUDITH R. COOPER, Ph.D.
Cultural Resources Program Director

Education

- Ph.D., Anthropology, emphasis in Archaeology, Southern Methodist University, 2008
- M.A., Anthropology, emphasis in Archaeology, Southern Methodist University, 2005
- Graduate Certificate Program, Geographic Information Systems, University of Texas at Dallas; Richardson, Texas, 2004
- B.A., Anthropology, emphasis in Archaeology, minor in Psychology, Penn State University, 2001

Training

- NEPA Training, Shipley Group, Seattle, Washington, December 2012
- Gas Detection Training, North Dakota Safety Council, February 2012
- Context Sensitive Solutions Training, National Highway Institute, November 2011
- Hydrogen Sulfide (H2S) Awareness , North Dakota Safety Council, February 2011
- American Red Cross CPR/AED and Standard First Aid, January 2011 & August 2013
- 10 hour OSHA Training, TrainND, Williston, North Dakota, March 2010
- Historic Preservation Compliance for Energy Projects: Understanding Comprehensive Procedures with Agencies & Tribes, CLE International, February 2010

Experience Summary

Dr. Cooper is the Cultural Resources Program Director and a Principal Investigator in SWCA's Austin, Texas, office. She has thirteen years of experience in prehistoric North American archaeology and has worked on field and research projects in Texas, Colorado, Wyoming, North Dakota, and Pennsylvania, including at the Paleoindian-aged Lindenmeier, Mountaineer, and Bonfire Shelter sites. Some of her research interests include hunter-gatherers of the Paleoindian and late pre-Contact periods in the Great Plains and Rocky Mountains, geographic information systems (GIS) and spatial analysis, human ecology and paleoenvironments, and lithic technology. She has a graduate certificate in GIS.

Dr. Cooper's doctoral dissertation research at Southern Methodist University, funded by the National Science Foundation and a Dissertation Write-up Grant from the Department of Anthropology and the Office of Research and Graduate Studies at Southern Methodist University, focused on broad changes across space and time in the diet of prehistoric peoples of the Great Plains, providing her with wide-reaching and extensive knowledge of prehistoric Plains cultures. As part of this research, she worked with data from thirteen state/provincial historic preservation offices in the U.S. and Canada, providing her with a unique perspective of the nature and extent of the Great Plains archaeological record.

Dr. Cooper has cultural resources consulting and management experience in Texas, Oklahoma, Kansas, Colorado, Wyoming, Montana, North Dakota, South Dakota, and Pennsylvania. She is responsible for project management, proposal development, research planning and design, prehistoric and historic archaeological research, analysis, reporting, and project/report review. She has published on archaeology of the Great Plains and Rocky Mountains in peer-reviewed journals such as the *Journal of Archaeological Science* and *American Antiquity* and has presented her research at a number of national and regional professional meetings.

SWCA Project Experience

17-Mile House Monitoring, Araphoe County, Colorado (2009): Duties include report writing. *Role: Archaeologist. Client: Arapahoe County.*

Arrow Midstream Holdings, Multiple Archaeological Monitoring Projects; Dunn and McKenzie Counties, North Dakota (2010-2012): Duties include project managmeent and coordination, agency consultation, and project oversight. *Role: Principal Investigator/Project Manager. Client: Arrow Midstream Holdings, LLC.*

Arrow Midstream Holdings, Multiple Trunk Pipelines; Dunn and McKenzie counties, North Dakota (2009-2011): Duties include field data collection, report coordination, and writing. *Role: Principal Investigator. Client: Arrow Midstream Holdings, LLC.*

Arrow Pipeline, Evaluative Shovel Testing of the Arrow Fort Berthold #148-95-23D-14-1H, #148-95-26A-35-1H, #148-95-23D-14-2H, and #148-95-26A-35-2H Gathering Pipeline, Dunn County, north Dakota. Duties include project coordination, scoping, and project oversight. *Role: Principal Investigator. Client: Arrow Midstream Holdings, LLC.*

Arrow Pipeline, Excavation of 32DU1535 in Association with the Proposed Arrow Fort Berthold #148-95-23D-14-1H, #148-95-26A-35-1H, #148-95-23D-14-2H, and #148-95-26A-35-2H Pipeline System, Dunn County, North Dakota. Duties include project coordination, scoping, and oversight. *Role: Principal Investigator. Client: Arrow Midstream Holdings, LLC.*

Arrow Pipeline, Kodiak Gathering Pipelines, Fort Berthold Indian Reservation, Dunn County, North Dakota (2010-2012): Duties include project managment, report coordination, and review. *Role: Principal Investigator/Project Manager. Client: ArrowPipeline, LLC.*

Arrow Pipeline, Questar Gathering Pipelines, Fort Berthold Indian Reservation, Dunn County, North Dakota (2010-2102): Duties include report coordination and review. *Role: Principal Investigator/Project Manager. Client: ArrowPipeline, LLC.*

Arrow Pipeline, Petro-Hunt Gathering Pipelines, Fort Berthold Indian Reservation, Dunn County, North Dakota (2010-2012): Duties include report coordination and review. *Role: Principal Investigator/Project Manager. Client: ArrowPipeline, LLC.*

Arrow Pipeline, XTO Gathering Pipelines, Fort Berthold Indian Reservation, Dunn County, North Dakota (2010-2012): Duties include report coordination and review. *Role: Principal Investigator/Project Manager. Client: ArrowPipeline, LLC.*

Bakken North Pipeline Project, North Dakota and Montana (2011-2012): Duties include project scoping and budgeting, task management, fieldwork planning, Class I file search, and agency consultation. *Role: Principal Investigator/Cultural Resources Lead. Client: Plains All American Pipeline.*

Blanco Vista Water Pipeline, Hays County, Texas (2013): Duties included project scoping, report coordination, report review, and project oversight *Role: PM. Client: Brookfield Residential.*

BNI Coal, Site Revisit, Oliver County, North Dakota (2010): Duties include project management, site recording, and site form write-up. *Role: Archaeologist and Project Manager. Client: BNI Coal.*

Buffalo Creek Pipeline, Beckham County, Oklahoma (2013): Duties include project scoping and budgeting, task management, file search coordination, and report QA/QC and review. *Role: Project Manager. Client: E3 Environmental, LLC.*

Carrera Madill Pipeline, Bryan and Marshall Counties, Oklahoma (2013): Duties include project scoping and budgeting, task management, fieldwork planning, EA preparation, and report QA/QC and review. *Role: Project Manager. Client: E3 Environmental, LLC.*

Centrahoma Stonewall Pipeline, Pontotoc and Coal Counties, Oklahoma (2013): Duties include project scoping and budgeting, task management, file search planning, and report QA/QC and review. *Role: Project Manager. Client: E3 Environmental, LLC.*

Chesapeake Rose Valley Pipeline, Woods County, Oklahoma (2013): Duties include project scoping and budgeting, task management, file search coordination, and report QA/QC and review. *Role: Project Manager. Client: E3 Environmental, LLC.*

City of Austin Site Damage Assessments, Travus County, Texas (2013): Duties include project scoping and budgeting, task management, and report QA/QC and review. *Role: Project Manager. Client: City of Austin.*

Cornell Companies, Hudson Correctional Facility; Hudson, Colorado (2009): Duties included assistant project management, project coordination, and report coordination. *Role: Assistant Project Manager. Client: Cornell Companies, Inc.*

Credo to Rawhide Pipeline, Glasscock and Sterling Counties, Texas (2013): Duties include project scoping and budgeting, task management, fieldwork planning, and report QA/QC and review. *Role: Project Manager. Client: DCP Midstream.*

David 3D/150 Geophysical Exploration Project, Dunn County, North Dakota (2012-2013): Duties include project scoping and budgeting, task management, agency consultation, client management, and fieldwork planning. *Role: Project Manager. Client: Dawson Geophysical.*

Denver Transit Construction Group RTD FasTracks West Corridor Paleontological Monitoring Project, Lakewood, Colorado (2009-2010): Duties included project management, client management, and project coordination. *Role: Project Manager. Client: Denver Transit Construction Group.*

Divide County Gathering System, Divide County, North Dakota (2012-2013): Duties include project management, client management, agency consulation, fieldwork coordination, report writing, and report review. *Role: Project Manager and Principal Investigator. Client:E3 Environmental, LLC.*

Eagle Chief Carmen Pipeline, Alfalfa County, Oklahoma (2013): Duties include project scoping and budgeting, task management, file search coordination, and report QA/QC and review. *Role: Project Manager. Client: E3 Environmental, LLC.*

Eagle Rock Wheeler Pipeline, Wheeler County, Texas (2013): Duties include project scoping and budgeting, task management, file search coordination, and report QA/QC and review. *Role: Project Manager. Client: E3 Environmental, LLC.*

Enerplus, Fort Berthold Well Pads, Dunn County, North Dakota (2010-2012): Duties include report coordination, fieldwork coordination, and review. *Role: Principal Investigator/Archaeologist. Client: Enerplus.*

Enogex McClure Pipeline, Custer County, Oklahoma (2013): Duties include project scoping and budgeting, task management, fieldwork planning, and report QA/QC and review. *Role: Project Manager/Principal Investigator. Client: E3 Environmental, LLC.*

EOG Resources, Inc., Fort Berthold BIA Well Pads, McKenzie County, North Dakota (2009-2013): Duties include fieldwork coordination, report writing, and report review. *Role: Principal Investigator/ Archaeologist. Client: EOG Resources, Inc.*

EOG Resources, Inc., Fee Surface Well Pads, Mountrail County, North Dakota (2010-2011): Duties include project management, client management, agency consulation, fieldwork coordination, report writing, and report review. *Role: Project Manager and Principal Investigator. Client: EOG Resources, Inc.*

FERC to Granite Pipeline, Hemphill County, Texas (2013): Duties include project scoping and budgeting, task management, file search coordination, and report QA/QC and review. *Role: Project Manager. Client: E3 Environmental, LLC.*

Fossil Creek Resources Federal 5-14H Well Access Reroute; Niobrara County, Wyoming (2008): Duties include site narrative writing, projectile point analysis, report revisions, and site form completion. *Role: Archaeologist. Client: James Enterprises, Inc., for Fossil Creek Resources.*

Garden Creek Gas Plant (2010): Duties include project management, client management, project oversight, agency consulation, fieldwork coordination, and report review. *Role: Principal Investigator and Project Manager. Client: E3 Environmental.*

Garden Creek Pipeline Project, North Dakota and Montana (2010-2011): Duties include project management, client management, fieldwork coordination, report writing, and report review. *Role: Project Manager and Principal Investigator. Client: E3 Environmental, LLC.*

Gunnison Rising Project; Gunnison, Colorado (2008): Duties include cultural historical research, projectile point analysis, report writing, review, revisions, and report coordination. *Role: Archaeologist. Client: Gunnison Valley Partners, LLC.*

Hess Avalanche Pipeline, Williams County, North Dakota (2010-2012): Duties include project scoping, agency consulation, and field and report coordination. *Role: Principal Investigator/Archaeologist. Client: Hess Corporation.*

Hess Federal Well Pads, McKenzie and Mountrail Counties, North Dakota (2010-2012): Duties include proejct mangement, agency consulation, fieldwork, field and report coordination, and report review. *Role: Principal Investigator and Project Manager. Client: Hess Corporation.*

Hess Keene Pipeline, McKenzie County, North Dakota (2010):): Duties include agency consulation and field/report coordination. *Role: Principal Investigator/Archaeologist. Client: Hess Corporation.*

Hess Red Sky Pipeline, Mountrail and Williams counties, North Dakota (2009): Duties include site form review and QA/QC. *Role: Archaeologist. Client: Hess Corporation.*

Hess Tioga Gas Plant Expansion Projects, Williams County, North Dakota (2010, 2011): Duties include project scoping, field and report coordination; report review. *Role: Principal Investigator/Archaeologist. Client: Hess Corporation.*

Hess Tioga Rail Terminal Project, Williams County, North Dakota (2010): Duties include project scoping, project coordination, and report review. *Role: Principal Investigator/Archaeologist. Client: Hess Corporation.*

Keystone XL Pipeline Project; Multiple Counties, Montana (2008-2009): Duties included site form preparation and production, prehistoric and historic research, and report writing. *Role: Archaeologist. Client: AECOM.*

Keystone XL Pipeline Project; Multiple Counties, South Dakota (2008-2009): Duties included culture history research and report writing. *Role: Archaeologist. Client: AECOM.*

Keystone XL Pipeline Project; Multiple Counties, Texas (2008-2009; 2013): Duties included project coordination, historic research, and report writing. *Role: Archaeologist. Client: AECOM/ENSR/expGlobal.*

Lane City Reservoir Project; Wharton County, Texas (2013): Duties included report review and QA/QC. *Role: Cultural Resources Program Director. Client: Lower Colorado River Authority.*

MB3D Geophysical Exploration Project, Richland County, Montana (2012-2013): Duties include project scoping and budgeting, task management, agency consultation, client management, and fieldwork planning. *Role: Project Manager. Client: Dawson Geophysical.*

Mitchell County Power Plant; Mitchell County, Texas (2013): Duties included report review and QA/QC, and agency consultation. *Role: Archaeologist. Client: FGE.*

Newmont Mining Company Sundance Project; Crook County, Wyoming (2008): Duties include report writing, culture history research, site narrative writing, report coordination, report revisions, and site form revisions and production. *Role: Archaeologist. Client: James Enterprises, Inc., for Newmont Mining.*

Normally Pressured Lance Core Area Project, Sublette County, Wyoming (2009-2010): Duties included assistant project managmeent, field preparation, report coordination, and report writing and review. *Role: Archaeologist. Client: EnCana.*

Normally Pressured Lance EA, Sublette County, Wyoming (2009): Duties included report writing. *Role: Archaeologist. Client: EnCana.*

O'Brien Homestead Federal #1 Well; Niobrara County, Wyoming (2008): Duties included report revision and production. *Role: Archaeologist. Client: James Enterprises, Inc., prepared for the BLM Newcastle Field Office.*

Paradise Transmission Project; Sublette County, Wyoming (2008): Duties included culture history writing and revisions. *Role: Archaeologist. GeoEngineers.*

Paso Robles Development, Hays County, Texas (2013): Duties included project scoping, report coordination, report review, and project oversight *Role: Program Director. Client: Paso Robles, LLC.*

Pecan Fertile LCS and Liberty CDP, Mountrail County, North Dakota (2010): Duties included report coordination, report review, agency consultation, and project oversight. *Role: Archaeologist/Principal Investigator. Client: Pecan Pipeline.*

Pecan Sidonia CDP/LCS and Alternate Compressor Station, Mountrail County, North Dakota (2010): Duties included report coordination, agency consultation, report review, and project oversight. *Role: Archaeologist/Principal Investigator. Client: Pecan Pipeline.*

Pecan Whiting Tie-In Cultural Resources Inventory, Mountrail County, North Dakota (2010): Duties included report coordination, report review, agency consultation, and project oversight. *Role: Archaeologist/Principal Investigator. Client: Pecan Pipeline.*

Pecan Stanley Gas Plant Expansion Cultural Resources Inventory, Mountrail County, North Dakota (2010): Duties included report coordination, agency consultation, report review, and project oversight. *Role: Archaeologist/Principal Investigator. Client: Pecan Pipeline.*

Pecan Ross LCS/CDP Cultural Resources Inventory, Mountrail County, North Dakota (2010): Duties included report coordination, report review, and project oversight. *Role: Archaeologist/Principal Investigator. Client: Pecan Pipeline.*

Pecan Archaeological Monitoring at 32MN0828, Mountrail County, North Dakota (2010): Duties included project coordination, agency consultation, and archaeological monitoring. *Role: Archaeologist/Cultural Resources Task Lead. Client: Pecan Pipeline.*

Petro-Hunt Site Revisits, Dunn County, North Dakota (2010): Duties include project management, fieldwork coordination, and site form review. *Role: Project Manager and Principal Investigator. Client: Petro-Hunt, LLC.*

Petro-Hunt Killdeer Pipeline, Dunn and McKenzie counties, North Dakota (2010): Duties include report review. *Role: Archaeologist/Cultural Resources Task Lead. Client: Petro-Hunt, LLC.*

Petro-Hunt State Highway 22 Expansion Project, Dunn County, North Dakota (2010): Duties include report writing and review. *Role: Principal Investigator. Client: Petro-Hunt, LLC.*

Petro-Hunt Central Leases Project, Fort Berthold Indian Reservation, McKenzie County, North Dakota (2010) Duties include report writing and review. *Role: Principal Investigator. Client: Petro-Hunt, LLC.*

Petro-Hunt 3 Well EA Project, Fort Berthold Indian Reservation, Dunn County, North Dakota (2010) Duties include report writing, coordination, and review. *Role: Principal Investigator. Client: Petro-Hunt, LLC.*

Petro-Hunt 4 Well EA Project, Fort Berthold Indian Reservation, Dunn County, North Dakota (2011) Duties include report writing, coordination, and review. *Role: Principal Investigator. Client: Petro-Hunt, LLC.*

Petro-Hunt 5 Well EA Project, Fort Berthold Indian Reservation, Dunn County, North Dakota (2010) Duties include report writing, coordination, and review. *Role: Principal Investigator. Client: Petro-Hunt, LLC.*

Pioneer Raton Basin Wells; Las Animas County, Colorado (2008): Duties include site form preparation and report writing. *Role: Archaeologist. Client: Pioneer.*

PAA Bakken North Pipeline, multiple counties in North Dakota and Montana (2011-2012) Duties include report writing, coordination, and review. *Role: Principal Investigator. Client: Plains All American Pipeline.*

PAA Nelson Take-Off to Ross Pipeline, Williams County, North Dakota (2011-2012) Duties include report writing, coordination, and review. *Role: Principal Investigator. Client: Plains All American Pipeline.*

Questar Fort Berthold Wells (5 wells); Dunn and McLean counties, North Dakota (2009): Duties include project management and report preparation. *Role: Project Manager. Client: Questar Exploration and Production Company.*

Rooks County Wind EA; Rooks County, Kansas (2009): Duties include Phase I file search. *Role: Archaeologist. Client: ICG Aeolian Energy.*

St. Croix 3-D Seismic Survey; Rio Blanco County, Colorado (2008): Duties include site form preparation and production, prehistoric and historic research, and report writing and production. *Role: Archaeologist. Client: St. Croix Seismic, LLC.*

Simray Fort Berthold Wells; Dunn County, North Dakota (2009): Duties include report writing and site form preparation. *Role: Archaeologist. Client: Simray Production Company.*

Slawson Exploration Water Disposal Well – Fox 1-28SWD, Dunn County, North Dakota (2010-2011): Duties include project oversight and report review. *Role: Principal Investigator/Archaeologist. Client: Slawson Exploration.*

Slawson Exploration USFS Well Pads (2011-2013): Duties include report review and field oversight. *Role: Principal Investigator/Archaeologist. Client: Slawson Exploration.*

State Line Gas Plant (2010-2011): Duties include project management, client management, project oversight, agency consulation, fieldwork coordination, and report review. *Role: Principal Investigator and Project Manager. Client: E3 Environmental.*

Stateline to Rawson Pipeline EA, Williams County, North Dakota (2012): Duties include project management, client management, project oversight, and report review. *Role: Principal Investigator and Project Manager. Client: E3 Environmental.*

Stateline to Riverview Pipeline, Williams County, North Dakota, and Richland and Roosevelt Counties, Montana (2011-2012): Duties include project management, client management, project oversight, agency consulation, fieldwork coordination, and report review. *Role: Principal Investigator and Project Manager. Client: E3 Environmental.*

TexStar Pipeline Project, Harris County, Texas (2013): Duties include report review, coordination, and project management. *Role: Principal Investigator and Project Manager. Client: Perennial Environmental.*

Tri-State Gore Pass Windy Gap; Grand County, Colorado (2008): Duties include historical research and site narrative writing. *Role: Archaeologist. Client: Tri-State*

United States Army Corps of Engineers (USACE), McLean and Mercer counties, North Dakota (2009-2010): Duties include report writing, coordination, and review. *Role: Archaeologist. Client: USACE, Omaha District.*

United States Army Corps of Engineers (USACE), various counties, South Dakota (2009-2010): Duties include report writing, coordination, and review. *Role: Archaeologist. Client: USACE, Omaha District.*

United States Army Corps of Engineers (USACE), Dunn County, North Dakota (2009-2010): Duties include assistant project management and project coordination. *Role: Archaeologist/Assistant Project Manager. Client: USACE, Omaha District.*

United States Army Corps of Engineers (USACE), Mountrail County, North Dakota (2011-2013): Duties include report review and project coordination. *Role: Principal Investigator. Client: USACE, Omaha District.*

United States Army Corps of Engineers (USACE), multiple counties, South Dakota and Nebraska (2009-2010): Duties include file search coordination and fieldwork coordination. *Role: Archaeologist. Client: USACE, Omaha District.*

United States Fish and Wildlife Service (USFWS), Lake Ilo Archaeological Mitigation Project, Dunn County, North Dakota (2010): Duties include project management, project planning, fieldwork coordination, agency consultation, and fieldwork execution. *Role: Project Manager/Field Director. Client: USFWS.*

Urland SS Antenna Tower, Tyler County, Texas (2013): Duties include project management, report review and project coordination. *Role: Principal Investigator/PM. Client: The WCM Group.*

Wasatch Wind Black Mountain MET C Tower Project, Natrona County, Wyoming (2009): Duties include report writing, site form production, and report production. *Role: Archaeologist. Client: Wasatch Wind.*

Williams Ryan Gulch Block Surveys; Rio Blanco County, Colorado (2008): Duties include report writing. *Role: Archaeologist. Client: Williams Production RMT Co.*

Zenergy Ft. Berthold Reservation EA, Well Pad Surveys; Dunn and McKenzie counties, North Dakota (2009-2010): Duties include proejct coordination, report writing, report coordination, and review. *Role: Principal Investigator. Client: Zenergy Operating Company, LLC.*

Zenergy Ft. Berthold Reservation EA, Gathering Line Surveys; Dunn and McKenzie counties, North Dakota (2009-2010): Duties include project coordination, report writing, report coordination, and review. *Role: Principal Investigator. Client: Zenergy Operating Company, LLC.*

Zenergy Monitoring Project for Well Pad and Gathering Line Construction, Dunn and McKenzie counties, North Dakota (2010): Duties include oversight of cultural resources monitoring and agency consultation. *Role: Principal Investigator. Client: Zenergy Operating Company, LLC.*

Zenergy Well Pads (2012-2013): Duties include project management, project planning, fieldwork coordination, agency consultation, and fieldwork execution. *Role: Project Manager/Principal Investigator. Client: Zenergy.*

Field Experience

Hess EN Rehak A-155-94-1423H-1, 2, 3 Super Well Pad and Access Road, Mountrail County, North Dakota (2010): Block inventory for well pad and linear inventory for access road (1 day). *Role: Lead Archaeologist/PI. Client: Hess.*

Arrow Questar MHA 2-06-01H Gathering Pipeline, Dunn County, North Dakota (2010): Site recording (1 day). *Role: Lead Archaeologist/PI. Client: Arrow Pipeline.*

Hess Avalanche Pipeline, Multiple Counties, North Dakota (2010): linear inventory (1 day). *Role: Lead Archaeologist/PI. Client: Hess.*

USFWS, Lake Ilo Archaeological Mitigation (Data Recovery) Project, Dunn County, North Dakota (2010): Block excavation at 32DU965 (2 weeks). *Role: Project Manager/Field Director. Client: USFWS*

Pecan Stanley Gas Plant Expansion, Mountrail County, North Dakota (2010): Block inventory (1 day). *Role: Lead Archaeologist/PI. Client: Pecan Pipeline.*

Pecan Whiting Tie-In, Mountrail County, North Dakota (2010): Linear and block inventory of gathering lines and additional work space areas (1 day). *Role: Lead Archaeologist/PI. Client: Pecan Pipeline.*

BNI Coal Site Revisit 32OL0498, Oliver County, North Dakota: Site revisit and recording at 32OL0498 (1 day). *Role: Archaeologist and Project Manager. Client: BNI Coal.*

Pecan Archaeological Monitoring at 32MN0828, Mountrail County, North Dakota (2010): Archaeological monitoring of radio tower construction following the identification of human remains by construction personnel (1 day). *Role: Archaeologist/PI. Client: Pecan Pipeline.*

Hess Tioga Gas Plant Expansion, Williams County, North Dakota (2010): Block survey of proposed gas plant expansion and oil storage facility (1 day). *Role: PI/Lead Archaeologist. Client: Hess Corporation.*

Zenergy Well Pads and Access Roads, Dunn and McKenzie counties, North Dakota (2010): Block and linear inventory of well pads and access roads; site recording (1 day). *Role: Archaeologist. Client: Zenergy.*

Arrow Phase 1B Pipeline and Well Pad Gathering Lines, Dunn and McKenzie counties, North Dakota (2009): Linear inventory of pipeline reroutes and well pad gathering lines (1 day). *Role: Archaeologist. Client: Zenergy.*

United States Army Corps of Engineers (USACE), Dunn County, North Dakota (2009): Block survey and inventory (1 day). *Role: Archaeologist. Client: USACE.*

United States Army Corps of Engineers (USACE), McLean County, North Dakota (2009): Block survey and inventory (1 week). *Role: Archaeologist. Client: USACE.*

Williams Culp Draw; Campbell County, Wyoming (2009); Block survey for well-pad and access roads (1 week). *Role: Archaeologist. Client: Williams.*

Pioneer Raton Basin Wells; Las Animas County, Colorado (2008): Well-pad survey (2 days). *Role: Archaeologist. Client: Pioneer.*

Lindenmeier Site; Larimer County, Colorado (2006): Dr. Jason LaBelle, director, Anthropology Department, Colorado State University (position funded by the Quest Archaeological Research Program, Southern Methodist University) (2 weeks). *Role: Survey Crew Member.*

Soapstone Prairie and Red Mountain Ranch; Colorado (2006): Dr. Jason LaBelle, director, Anthropology Department, Colorado State University (position funded by the Quest Archaeological Research Program) (1 month). *Role: Assistant Crew Leader / Survey Crew Member.*

Lanning; Gateview, Colorado (2005): Quest Archaeological Research Program, Southern Methodist University (2 weeks). *Role: Survey and Excavation Crew Member.*

Flat Top; Gunnison, Colorado (2005): Quest Archaeological Research Program, Southern Methodist University (1 week). *Role: Survey Crew Member.*

Bonfire Shelter; Langtry, Texas (2005): Quest Archaeological Research Program, Southern Methodist University (2.5 weeks). *Role: Survey and Excavation Crew Member.*

Mountaineer Site; Gunnison, Colorado (2003, 2005, and 2009): Quest Archaeological Research Program, Southern Methodist University (2.5 months). *Role: Excavation Crew Member (2003 and 2005) and Volunteer (2009).*

5GN149, Curecanti National Recreation Area; Colorado (2003–2004): Quest Archaeological Research Program, Southern Methodist University (1 month). *Role: Field Director (2004) and Survey and Excavation Crew Member (2003).*

Hot Tubb Site; Crane, Texas (2003): Quest Archaeological Research Program, Southern Methodist University (1 month). *Role: Excavation Crew Member.*

Commonwealth Archaeology Program, Harrisburg, Pennsylvania (2002). Pennsylvania Bureau for Historic Preservation (9 months). *Role: Field Technician.*

Penn State Field School, State College; Pennsylvania (2001): Anthropology Department, Pennsylvania State University (2.5 months). *Role: Field Crew Supervisor.*

Cortez, Colorado (2000): Anthropology Department, Penn State University (2 months). *Role: Survey Crew Member.*

Hatch Quarry Site, State College; Pennsylvania (1999): Dr. James Hatch and Dr. Timothy Murtha, directors, Anthropology Department, Penn State University (6 months). *Role: Survey and Excavation Crew Member.*

Hershey Site; Lancaster, Pennsylvania (1999): Dr. James Hatch, director, Anthropology Department, Penn State University (2 months). *Role: Archaeological Field School Student.*

Research Experience

- **Quest Archaeological Research Program, Southern Methodist University (2005–2008).** *Role: Graduate Research Assistant.*
- **Quest Archaeological Research Program, Southern Methodist University (2003–2005).** *Role: Intern / Employee Supervisor.*
- **Quest Archaeological Research Program, Southern Methodist University (2003–2005).** *Role: Lab Technician.*
- **Edwin J. Foscue Map Library, Southern Methodist University (2004).** *Role: GIS Specialist / Library Assistant.*
- **Quest Archaeological Research Program, Southern Methodist University (2002).** *Role: Graduate Research Assistant.*
- **Commonwealth Archaeology Program, Bureau for Historic Preservation; Harrisburg, Pennsylvania (2002).** *Role: Lab Technician.*
- **Anthropology Department, Penn State University (2001–2002):** Supervised by Dr. George Milner. *Role: Scientific Illustrator.*
- **Anthropology Department, Penn State University (2001–2002):** Supervised by Dr. Frances Hayashida. *Role: Laboratory Assistant.*
- **Anthropology Department, Penn State University (2000):** Supervised by Dr. Dean Snow. *Role: Lab Intern.*
- **Anthropology Department, Penn State University (1999–2000):** Supervised by Dr. Brad Andrews and Dr. Timothy Murtha. *Role: Lab Technician.*
- **Anthropology Department, Penn State University (1999):** Supervised by Dr. James Hatch. *Role: Lab Intern.*

Professional Experience

SWCA Environmental Consultants; Austin, Texas (April 2013 - present): Cultural Resources Program Director, principal investigator, project manager, report review and QA/QC, business development, and proposal preparation and coordination. *Role: Cultural Resources Program Director.*

SWCA Environmental Consultants; Bismarck, North Dakota (February 2012- April 2013): Office Director, marketing and business development lead, proposal coordination, principal investigator, project manager, report review. *Role: Office Director.*

SWCA Environmental Consultants; Bismarck, North Dakota (February 2010–February 2012): Cultural Resources team lead, principal investigator, project manager, report review and QA/QC, proposal writing, fieldwork and report coordination, report writing, and archaeological and historical research. *Role: Cultural Resources Team Lead.*

SWCA Environmental Consultants; Denver, Colorado (June 2008–February 2010): Project management, proposal writing, fieldwork and report coordination, report writing, archaeological and historical research, report review, and Access database design. *Role: Project Manager/Archaeologist.*

Commonwealth Archaeology Program, Harrisburg, Pennsylvania (2002). Field and laboratory archaeological technician for the Pennsylvania Bureau for Historic Preservation. *Role: Archaeological Technician.*

Teaching Appointments

- **Department of Anthropology, Colorado State University (2008).** *Role: Adjunct Instructor.*
- **Department of Anthropology, Southern Methodist University (2004):** Supervised by Dr. John Williams. *Role: Lab Instructor / Teaching Assistant.*
- **Department of Anthropology, Southern Methodist University (2003):** Supervised by Dr. Michael Adler. *Role: Instructor / Teaching Assistant.*
- **Department of Anthropology, Pennsylvania State University (2001):** Supervised by Dr. Dean Snow. *Role: Undergraduate Teaching Assistant.*

Publications

Cooper, Judith R. and David Meltzer. 2009. Investigations at 5GN149, a Lithic Workshop in the Upper Gunnison Basin, Colorado. *Journal of Colorado Archaeology* 75 (1& 2):3-29.

Byerly, Ryan M., Judith R. Cooper, David J. Meltzer, Matthew E. Hill, and Jason M. LaBelle. 2007. A Further Assessment of Paleoindian Site-Use at Bonfire Shelter. *American Antiquity* 72:366-381.

Byerly, Ryan M., David J. Meltzer, Judith R. Cooper and Jim Theler. 2007. Exploring Paleoindian Site-Use at Bonfire Shelter (41VV218). *Bulletin of the Texas Archaeological Society* 78:125-147.

Cooper, Judith R. 2007. A Synopsis of a Research Visit: Exploring the Role of Bison in Manitoba's Past. *Manitoba Archaeological Newsletter,* Series 2, 18(3-4):10-11.

Meltzer, David J., Ryan M. Byerly, and Judith R. Cooper. 2007. On an alternative interpretation of Paleoindian site use at Bonfire Shelter. *Bulletin of the Texas Archaeological Society* 78:159-160.

Cooper, Judith R. 2006. A Possible Clovis-Age Quartzite Workshop (5GN149) in Gunnison County, Colorado. *Current Research in the Pleistocene* 23:96-98.

Meltzer, David J. and Judith R. Cooper. 2006. On Morphometric Differentiation of Clovis and Non-Clovis Blades. *Current Research in the Pleistocene* 23:143-145.

Cooper, Judith R. and Fang Qiu. 2006. Expediting and Standardizing Stone Artifact Refitting Using a Computerized Suitability Model. *Journal of Archaeological Science* 33:987-998.

Byerly, Ryan M., Judith R. Cooper, David J. Meltzer, Matthew E. Hill, and Jason M. LaBelle. 2005. On Bonfire Shelter (Texas) as a Paleoindian Bison Jump: An Assessment Using GIS and Zooarchaeology. *American Antiquity* 70:595-629.

Cooper, Judith R. and Ryan M. Byerly. 2005. The Significance of a Second Folsom Projectile Point from Bonfire Shelter, Texas. *Current Research in the Pleistocene* 22:41-43.

Book Reviews

Cooper, Judith R. 2009. Review of *Imagining Head-Smashed-In: Aboriginal Buffalo Hunting on the Northern Plains*. *Journal of Anthropological Research* 65:653-654.

Unpublished Manuscripts

Cooper, Judith R. *Bison Hunting and Late Prehistoric Human Subsistence Economies in the Great Plains*. Unpublished Doctoral Dissertation submitted to the Department of Anthropology, Southern Methodist University, Dallas, Texas.

Technical Reports (Principal Investigator)

Addendum 1: Intensive Cultural Resources Survey of a 4.49-Mile Reroute of the TexStar Pipeline Project in Harris County, Texas. 2013. Unpublished report submitted to the USACE, Galveston District.

Addendum to A Class I and Class III Cultural Resource Inventory of the Plains All-American Pipeline Nelson Takeoff to Ross Pipeline, Mountrail County, North Dakota: The Little Knife River Reroute. 2012. Unpublished report submitted to North Dakota State Historic Preservation Office.

Addendum to the Class I and Class III Cultural Resource Inventory of the ONEOK Rockies Midstream Stateline NGL Pipeline, Richland and Roosevelt Counties, Montana for the Lunderby Reroute. 2012. Unpublished report submitted to Montana State Historic Preservation Office.

(with Michael Retter) *A Class I and Class III Cultural Resource Inventory of the Arrow Pipeline Kodiak Two Shields Butte 3-24-12H/Skunk Creek 3-24-25H Gathering Pipeline/Kodiak Two Shields Butte 2-24-12H/Skunk Creek 2-24-25H Gathering Pipelines on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the Arrow Kodiak Two Shields Butte 5-7-8-1H Gathering Pipeline, Fort Berthold Indian Reservation, Dunn County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Michael Retter) *A Class I and Class III Cultural Resource Inventory of the Arrow Kodiak Two Shields Butte #14-21-33-15H Gathering Line, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of the Arrow Phase 2E BIA 13 Pipeline Connecting to the Arrow Phase 2E and East Mandaree Pipelines on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the Arrow Pipeline Questar MHA 1-06-31H-150-92 Gathering Pipeline on the Fort Berthold Indian Reservation, Dunn County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Michael Retter). *A Class I and Class III Cultural Resource Inventory of the Arrow Pipeline Questar MHA 2-6-1H Gathering Pipeline on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of the Arrow Two Shields Butte #14-33-6H and #14-33-28H Gathering Line on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of the Arrow Two Shields Butte #16-8-7H and #16-8-16H Gathering Pipeline, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Michael Retter). *A Class I and Class III Cultural Resource Inventory of the Arrow XTO Ironwoman – Yellowwolf Gathering Line, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Michael Retter). *A Class I and Class III Cultural Resource Inventory of the Arrow XTO WalterPacksWolf Gathering Line, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of the Enerplus Birdbear 1-06H Well and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the Enerplus Resources Cayenne, Poblano, Vise, and Axe Well Pad and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the Enerplus Resources Cedar and Pine Well Pad and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the Enerplus Resources Habanero, Anvil, Forge, and Jalapeno Well Pad and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the Enerplus Resources Hawaii and Maui Well Pad and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the Enerplus Resources Hilo and Kona Well Pad and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the Enerplus Resources Oak and Spruce Well Pad and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the Enerplus Yellowbird #1-06H Well Location and Access Road on the Fort Berthold Indian Reservation, Dunn County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the EOG Bear Den 3-30H Well Pad and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the EOG Bear Den 18-21H Well Pad and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the EOG Clarks Creek 2-17H Well Pad and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the EOG Clarks Creek 10-0805H Well Pad and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the EOG Clarks Creek 13-1806H Well Pad and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the EOG Clarks Creek 13-1806H Well Pad and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the EOG Hawkeye #02-2536H and Hawkeye #100-2536H Well Pad and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the EOG Hawkeye #03-24H, Hawkeye #04-24H, and Hawkeye #100-24H Well Pad and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the EOG Horse Camp 3-16H Well Pad and Access Road Alternate Location on the Fort Berthold Indian Reservation, Dunn County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the Riverview #04-3031H and Riverview #100-3031H Well Pad and Access Road, McKenzie County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the EOG West Clark Creek 01-2413H Well Pad and Access Road Location on the Fort Berthold Indian Reservation, McKenzie County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of the Hess Corporation Tioga Gas Plant Expansion Project, Williams County, North Dakota*. 2010. Unpublished report submitted to the North Dakota State Historic Preservation Office.

(with William Harding). *A Class I and Class III Cultural Resource Inventory of the Hess Goliath Pipeline, Williams County, North Dakota*. Unpublished report prepared for Hess Corporation and submitted to North Dakota State Historic Preservation Office.

(with Michael Retter) *A Class I and Class III Cultural Resource Inventory of the Hess Tioga Rail Terminal, Williams County, North Dakota*. 2010. Unpublished report prepared for Hess Corporation and submitted to North Dakota State Historic Preservation Office.

A Class I and Class III Cultural Resource Inventory of the OXY Russian Creek Phase 2 and Northern Extension Gathering Pipeline System, Dunn County, North Dakota. Unpublished report prepared for OXY USA and submitted to North Dakota State Historic Preservation Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of the Pecan Gas Plant Extension South (AFE 800561), Mountrail County, North Dakota*. 2010. Unpublished report prepared for Pecan Pipeline, LLC, and submitted to North Dakota State Historic Preservation Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of the Pecan Liberty CDP and Fertile LCS, Mountrail County, North Dakota* 2010. Unpublished report prepared for Pecan Pipeline, LLC, and submitted to North Dakota State Historic Preservation Office.

A Class I and Class III Cultural Resource Inventory for the Pecan Pipeline 63rd Street NW and 79th Avenue NW Road Expansion Project, Mountrail County, North Dakota. 2010. Unpublished report prepared for Pecan Pipeline, LLC, and submitted to North Dakota State Historic Preservation Office.

A Class I and Class III Cultural Resource Inventory of the Pecan Pipeline Parshall LCS, Mountrail County, North Dakota. 2010. Unpublished report prepared for Pecan Pipeline, LLC, and submitted to North Dakota State Historic Preservation Office.

A Class I and Class III Cultural Resource Inventory of the Pecan Pipeline Ross LCS-CDP, Mountrail County, North Dakota. 2010. Unpublished report prepared for Pecan Pipeline, LLC, and submitted to North Dakota State Historic Preservation Office.

A Class I and Class III Cultural Resource Inventory of the Pecan Pipeline Sidonia Compressor Station Alternative Location, Mountrail County, North Dakota. 2010. Unpublished report prepared for Pecan Pipeline, LLC, and submitted to North Dakota State Historic Preservation Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of the Pecan Sidonia LCS/CDP, Mountrail County, North Dakota*. 2010. Unpublished report prepared for Pecan Pipeline, LLC, and submitted to North Dakota State Historic Preservation Office.

A Class I and Class III Cultural Resource Inventory of the Pecan Pipeline Van Hook CDP, Mountrail County, North Dakota. 2010. Unpublished report prepared for Pecan Pipeline, LLC, and submitted to North Dakota State Historic Preservation Office.

(with Michael Retter) *A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 148-94-17D-8-2H Well Pad Expansion and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2011. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 148-94-19D-18-1H and Fort Berthold 148-94-30A-31-1H Dual Well Pad and Access Road, Dunn County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Michael Retter) *A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 148-94-29B-32-1H Well Pad and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Michael Retter) *A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 148-95-24C-13-1H/148-95-25B-36-1H Well Pad and Access Road, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Michael Retter) *A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 148-95-26A-35-1H/148-95-23D-14-1H Well Pad and Access Road, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Michael Retter) *A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 148-95-3A-10-1H Well Pad and Access Road, Dunn and McKenzie Counties, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 151-94-34C-27-1H / Fort Berthold 150-94-3B-10-1H Dual Well Pad and Access Road, Fort Berthold*

Indian Reservation, McKenzie County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the Rangeland Energy COLT Connector Pipeline, Williams County, North Dakota. 2011. Unpublished report prepared for Barr Engineering and submitted to the North Dakota State Historic Preservation Office.

(with William Harding). *A Class I and Class III Cultural Resource Inventory of the Samson Resources Salt Water Disposal Pipeline, Divide County, North Dakota*. 2013. Unpublished report prepared for Samson Resources and submitted to the North Dakota State Historic Preservation Office.

(with Michael Retter) *A Class I and Class III Cultural Resource Inventory of the Slawson Water Disposal Well – Fox 1-28SWD on Fee Land within the Boundaries of the Fort Berthold Indian Reservation, Mountrail County, North Dakota*. 2011. Unpublished report submitted to Environmental Protection Agency.

(with Michael Retter) *A Class I and Class III Cultural Resource Inventory of the State Line Gas Plant, Williams County, North Dakota*. 2011. Unpublished report prepared for E3 Environmental, LLC, and submitted to the North Dakota State Historic Preservation Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of the Tesoro Pipeline Facility Construction Project, Williams County, North Dakota*. 2010. Unpublished report submitted to North Dakota State Historic Preservation Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of Three Slawson Federal Well Pads (Phalanx 1-22H, 2-22H, and 3-22H; Chariot 3-27H/ Battleax 3-34H; and Chariot 1-27H, 2-27H/Battleax 1-34H, 2-34H), U.S. Forest Service and Private Lands, McKenzie County, North Dakota*. 2012. Unpublished report submitted to the U.S. Forest Service, Dakota Prairie National Grasslands.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of the Zenergy Dakota-3 Beaks #36-35H Gathering Line, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Michael Retter). *A Class I and Class III Cultural Resource Inventory of the Zenergy Dakota-3 Gerald Hale #33-28H Well Pad, Access Road, and Gathering Line on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory and Evaluative Shovel Testing of the Zenergy Dakota-3 Helena Ruth Grant #33-34H Well Pad, Access Road, and Gathering Pipeline, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of the Zenergy Dakota-3 John Elk #28-27H Well Pad and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota* 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Michael Retter). *A Class I and Class III Cultural Resource Inventory of the Zenergy Dakota-3 Joseph Eagle #2-19H Well Pad, Access Road, and Gathering Line on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Michael Retter). *A Class I and Class III Cultural Resource Inventory of the Zenergy Dakota-Fox #14-8H Well Pad, Access Road, and Gathering Line on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Michael Retter). *A Class I and Class III Cultural Resource Inventory of the Zenergy Dakota-Kate Soldier23-14/Bear Den 2413H Dual Well Pad, Access Road, and Gathering Line on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

A Class I and Class III Cultural Resource Inventory of the Zenergy Dakota-3 Mandaree Warrior14-11H Well Pad, Access Road, and Gathering Line on the Fort Berthold Indian Reservation, Dunn County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Michael Retter). *A Class I and Class III Cultural Resource Inventory of the Zenergy Dakota-3 Sarah Smith #22-23H Well Pad, Access Road, and Gathering Line on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with Scott Slessman). *A Class I and Class III Cultural Resource Inventory of the Zenergy Dakota-3 Wells #32-29H Well Pad and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

(with William Harding and Scott Slessman). *A Cultural Resource Inventory of USACE Lands on Lake Sakakawea, Mountrail County, North Dakota*. 2013. An unpublished report prepared for U.S. Army Corps of Engineers, Omaha District.

Cultural Resources Survey for the Enogex McClure Pipeline Project, Custer County, Oklahoma. 2013. Unpublished report submitted to the ONEOK, Inc.

Unanticipated Discovery Plan for Cultural Resources Identified During Construction of the ONEOK Crosby Discharge Main Trunk Pipeline, Divide and Williams Counties, North Dakota. 2012. An unpublished report prepared for E3 Environmental, LLC, and submitted to the State Historical Society of North Dakota

(with Michael Retter). *Unanticipated Discovery Plan for Cultural Resources Identified During Construction of the Garden Creek Gas Plant, McKenzie County, North Dakota*. 2010. An unpublished report prepared for E3 Environmental, LLC, and submitted to the State Historical Society of North Dakota

Technical Reports (Author)

Alan Hutchinson, Judith Cooper, and Stephanie Lechert. *A Class I and Class III Cultural Resource Inventory of the Zenergy Dakota-3 John Elk #28-27H Well Pad and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota* 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

Caryn M. Berg, Zonna Barnes, Nelson Klitzka, Thomas Witt, Sean Doyle, Judith Cooper, Erin Salisbury, Guy Hepp, Scott A. Slessman, Michael Retter. *Level III Cultural Resources Survey for the Steele City Segment in South Dakota for the Keystone XL Project, Butte, Haakon, Harding, Jones, Lyman, Meade, Perkins, and Tripp Counties, South Dakota - Addendum 1: Additional Fieldwork Results*. 2008. Unpublished report submitted to ENSR.

Caryn M. Berg, Judy Cooper, Jennifer Long, Ryan Byerly, Daniel Shosky, Vanesa Zietz, Carolyn Riordan, Norma K. Crumbley, Erin Salisbury, Scott A. Slessman, Michael Retter, Rebecca Schwendler. 2008. *Class III Cultural Resources Survey for the Montana Segment of the Keystone XL Pipeline Project*. Unpublished report submitted to ENSR.

Caryn M. Berg, Judith Cooper, Jennifer Long, Zonna Barnes, Nelson Klitzka, Thomas Witt, Ryan Byerly, Daniel Shosky, Vanesa Zietz, Carolyn Riordan, Sean Doyle, Jason Burkard, Andrew Kincaid, Norma K. Crumbley, Erin Salisbury, Scott A. Slessman, Michael Retter, Rebecca Schwendler. 2008. *Class III Cultural Resources Survey for the Steele City Segment in Montana of the Keystone XL Project, Dawson, Fallon, McCone, Phillips, Prairie, and Valley Counties, Montana*. Unpublished report submitted to ENSR.

Caryn M. Berg, Judith Cooper, Jennifer Long, Ryan Byerly, Daniel Shosky, Vanesa Zietz, Norma K. Crumbley, Courtney Higgins, Noelle Boyer, Jason Burkard, Thomas Witt, Sean Doyle, Erin Salisbury, Scott A. Slessman, Michael Retter. 2008. *Level III Cultural Resources Survey for the South Dakota Segment of the Keystone XL Pipeline Project, Butte, Haakon, Jones, Lyman, Meade, Perkins, and Tripp Counties, South Dakota*. 2008. Unpublished report submitted to ENSR.

Steve Carpenter, Ken Lawrence, Kevin Miller, Laura Acuna, Judy Cooper, Ryan Byerly, Courtney Higgins, Jennifer Long, Norma Crumbley, and Erin Salisbury. 2008. Cultural Resource Inventory of the Keystone Xl Phase 1 Crude Oil Pipeline: Texas Portions of Route H: Angelina, Chambers, Cherokee, Delta, Fannin, Franklin, Hardin, Harris, Hopkins, Jefferson, Lamar, Liberty, Nacogdoches, Polk, Rusk, Smith, Upshur, And Wood Counties, Texas. Unpublished report submitted to ENSR.

Steve Carpenter, Kevin A. Miller, Jim Steely, Anna Mod, Adrienne Tremblay, Ken Lawrence, Laura I. Acuña, Judith Cooper, Norma Crumbley, Courtney Higgins, Ryan Byerly, Jennifer Long, Vanesa Zietz, Michelle Delmas, Carolyn Riordan, Lindsay Kester, Lisa Benson, Noelle Boyer, Erin Salisbury, Nelson Klitzka, Sarah Baer, Caryn Berg, Thomas Witt, Sean Doyle, and Karen Reed (2009). *Cultural Resource Inventory of The Keystone Xl Project, Gulf Coast Segment in Texas: Angelina, Cherokee, Delta, Fannin, Franklin, Hardin, Hopkins, Jefferson, Lamar, Liberty, Nacogdoches, Polk, Rusk, Smith, Upshur, And Wood Counties, Texas*. Unpublished report submitted to AECOM.

Judith Cooper. *Addendum to the Class III Cultural Resource Inventory of the Dakota-3 Wolf #27-34H (formerly Wolf #3-27H) Well Pad and Access Road on the Fort Berthold Indian Reservation, McKenzie County, North Dakota, to Authorize Land Use for the Wolf #27-34H Gathering Pipeline*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

Judith Cooper. *Addendum to the Class III Cultural Resource Inventory of the Dakota-3 Cross #2-13H Well Pad and Access Road on the Fort Berthold Indian Reservation, McKenzie County, North Dakota, to Authorize Land Use for Gathering Pipelines Connecting Dakota-3 Cross #2-13H to Arrow Trunk Pipeline*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

Judith Cooper. *Addendum to the Class III Cultural Resource Inventory of the Dakota-3 Patricia Charging #4-15H Well Pad and Access Road on the Fort Berthold Indian Reservation, Dunn County, North Dakota, to Authorize Land Use for the Patricia Charging #4-15H to Alisia Fox #16-9H Gathering Pipeline*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

Judith Cooper. *Addendum to the Class I and Class III Cultural Resource Inventory of the Nathan Hale #4-25H Well Pad and Access Road on the Fort Berthold Indian Reservation, McKenzie County, North Dakota, Due to Access Road Reroute*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

Judith Cooper. *A Class I and Class III Cultural Resources Inventory of the Arrow Midstream Holding Pipeline Northern Extension, Fort Berthold Indian Reservation, Dunn and McKenzie Counties, North Dakota*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

Judith Cooper. *A Class I and Class III Cultural Resources Inventory of the Simray J.M. Hall 1-19H Well Pad and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

Judith Cooper. *A Class III Cultural Resources Inventory of the Questar MHA 1-05H-147-92 Well Pad and Access Road, Dunn County, North Dakota*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

Judith Cooper. *A Class III Cultural Resources Inventory of the Questar MHA 1-32H-148-92 Well Pad and Access Road, Dunn County, North Dakota*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

Judith Cooper. *A Class III Cultural Resources Inventory of the Questar MHA 1-33H-148-92 Well Pad and Access Road, McLean County, North Dakota*. 2009. An unpublished report submitted to BIA, Great Plains Regional Office.

Judith Cooper. *A Class III Cultural Resources Inventory of the MHA 1-01H-149-91 Well Pad and Access Road, Dunn County, North Dakota*. 2009. An unpublished report submitted to BIA, Great Plains Regional Office.

Judith Cooper. *Unanticipated Discovery Plan for Cultural Resources Identified During Construction of the Garden Creek Gas Plant, McKenzie County, North Dakota*. 2010. An unpublished report prepared for E3 Environmental, LLC, and submitted to the State Historical Society of North Dakota.

Judith Cooper, Zonna Barnes, Caryn M. Berg, Nelson Klitzka, Ashley Fife, Courtney Higgins, Ryan Byerly, Jennifer Long, Thomas Witt, Sean Doyle, Scott A. Slessman, and Erin Salisbury. *Class III Cultural Resources Survey for the Steele City Segment in Montana of the Keystone XL Pipeline Project*, Dawson, Fallon, McCone, Phillips, Prairie, and Valley Counties, Montana. Addendum 1: Additional Fieldwork Results. 2009. Unpublished report submitted to ENSR.

Judith Cooper and Norma Crumbley. *Cultural Resource Monitoring of 17-Mile House (5AH17), Arapahoe County, Colorado*. 2009. Unpublished report submitted to Arapahoe County.

Judith Cooper, Norma Crumbley, and Caryn Berg. *A Class I and Class III Cultural Resources Inventory of the Zenergy Fettig 3-6H Well and Access Road, Fort Berthold Indian Reservation, Dunn and McKenzie Counties, North Dakota*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

Judith Cooper and Nancy Eisenhauer. *Addendum to the Class I and Class III Cultural Resource Inventory of the Dakota-3 Black Hawk #15-34H Well Pad and Access Road on the Fort Berthold Indian Reservation, Dunn County, North Dakota, to Authorize Land Use for a Gathering Pipeline Connecting the Black Hawk 15-34H Well Pad to the Phase 2E Pipeline*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

Judith Cooper, Stephanie Lechert, and Nicholas Smith. *A Class I and Class III Cultural Resource Inventory of the North Dakota State Highway 22 Road Expansion Project for the Fort Berthold 148-95-22D-15-1H and Fort Berthold 148-95-27A-34-1H Dual Well Pad and Access Road on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report prepared for Petro-Hunt, LLC and submitted to the North Dakota Department of Transportation.

Judith Cooper, Michael Retter, Karen Reed, Thomas Witt, Caryn Berg, and James Brechtel. *A Class III Cultural Resources Inventory of the Newmont Mining Company Sundance Project, Crook County, Wyoming*. 2008. Unpublished report submitted to USFS, Bearlodge Ranger District, Black Hills National Forest. Prepared by James Enterprises, Inc, Fort Collins, Colorado.

Judith Cooper, Carolyn Riordan, Jason Burkard, Nelson Klitzka, Matt Bandy, Andrew Kincaid, and Erin Salisbury. *A Class I and Class III Cultural Resource Inventory of the Gunnison Rising Project, Gunnison County, Colorado*. 2008. Unpublished report submitted to Gunnison Valley Partners, LLC.

Judith Cooper and Nicholas Smith. A Class I and Class III Cultural Resource Inventory of the Hess AN-Bohmbach 153-94-2734H-1 Well Pad and Access Road, McKenzie County, North Dakota. 2010. Unpublished report submitted to the BLM, North Dakota Field Office.

Judith Cooper and Vincent Wray. *A Class I and Class III Cultural Resource Inventory of the EOG Van Hook 116-2326H Well Pad and Access Road, Mountrail County, North Dakota*. 2010. Unpublished report submitted to the BLM, North Dakota Field Office.

Judith Cooper and Vincent Wray. *A Class I and Class III Cultural Resource Inventory of the EOG Van Hook 119-3526H Well Pad and Access Road, Mountrail County, North Dakota*. 2010. Unpublished report submitted to the BLM, North Dakota Field Office.

Judith Cooper and Vanesa Zietz. *A Class III Cultural Resources Inventory of the Wasatch Wind Black Mountain MET C Tower Project, Natrona County, Wyoming*. 2009. Unpublished report submitted to the BLM-LFO.

Michael Cregger, Thomas Witt, and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the EOG Mandaree 11-06H Well Pad and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

Michelle Delmas, Judith Cooper, and Norma Crumbley. *A Class I and Class III Cultural Resource Inventory of the Hudson Correctional Facility Project, Weld County, Colorado*. 2009. Unpublished report submitted to Bureau of Reclamation.

Danielle Desruisseaux, Stephanie Lechert, and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 148-95-3A-10-1H Well Pad and Access Road, Dunn and McKenzie Counties, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

Danielle Desruisseaux, Stephanie Lechert, and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 148-95-26A-35-1H/148-95-23D-14-1H Well Pad and Access Road, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

Sean Doyle, Zonna Barnes, Vanesa Zietz, Nelson Klitzka, Thomas Witt, Judith Cooper, Carolyn Riordan, Erin Salisbury, and Elizabeth Kreider. 2009. *Level III Cultural Resources Survey for the Steele City Segment in South Dakota of the Keystone XL Project, Butte, Haakon, Harding, Jones, Lyman, Meade, Perkins, Tripp, and Gregory Counties, South Dakota, Addendum 2: Additional Fieldwork Results*. Unpublished report submitted to AECOM.

R. Ashley Fife, Judith Cooper, and Norma Crumbley. *A Class I and Class III Cultural Resources Inventory of the Zenergy Joseph Eagle 16-19H Well and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

R. Ashley Fife, Stephanie Lechert, Judith Cooper, Victoria Rose, and Norma Crumbley. *A Class I and Class III Cultural Resources Inventory of the Zenergy Wolf 27-34H and Fettig 16-22H Wells and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota. 2009*. Unpublished report submitted to the BIA, Great Plains Regional Office.

Chandler Herson and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the EOG Resources Liberty LR 15-26H Dual Well Pad and Access Road, Mountrail County, North Dakota*. 2010. Unpublished report submitted to the BLM, North Dakota Field Office.

Chandler Herson and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the EOG Resources Liberty LR 17-11H Access Road, Mountrail County, North Dakota*. 2011. Unpublished report submitted to the BLM, North Dakota Field Office.

Chandler Herson and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 148-94-17D-8-2H Well Pad Expansion and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2011. Unpublished report submitted to the BIA, Great Plains Regional Office.

Chandler Herson and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Hess EN-Rehak A-155-94-1423H-1, 2, 3 Super Well Pad and Access Road, Mountrail County, North Dakota*. 2011. Unpublished report submitted to the BLM, North Dakota Field Office.

Chandler Herson, Nicholas Smith, and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold #151-94-26A-35-2H and Fort Berthold #151-94-26B-35-1H Well Pads and Access Roads, McKenzie County, North Dakota*. 2010. An unpublished report submitted to BIA, Great Plains Regional Office.

Courtney Higgins and Judith Cooper. *A Class III Cultural Resource Inventory of the High Hawk 4-9H Well Pad and Access Road on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. An unpublished report submitted to BIA, Great Plains Regional Office.

Nelson Klitzka, Stephanie Lechert, and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Pecan Gas Plant Extension South (AFE 800561), Mountrail County, North Dakota*. 2010. Unpublished report prepared for Pecan Pipeline, LLC, and submitted to North Dakota State Historic Preservation Office.

Nelson Klitzka, Nicholas Smith, and Judith Cooper. *A Class I and Class III Cultural Resource Inventory for the Pecan Pipeline 63rd Street NW and 79th Avenue NW Road Expansion Project, Mountrail County, North Dakota*. 2010. Unpublished report prepared for Pecan Pipeline, LLC, and submitted to North Dakota State Historic Preservation Office.

Stephanie Lechert and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Arrow Midstream Holdings East Mandaree Pipeline, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

Stephanie Lechert and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Arrow Midstream Holdings Phase 1B South Pipeline, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

Stephanie Lechert and Judith Cooper. *A Class I and III Cultural Resource Inventory of the Zenergy Fast Dog 4-5H and Fast Dog 14-5H Well Pads and Access Roads, Dunn County, North Dakota*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

Stephanie Lechert and Judith Cooper. *A Cultural Resource Inventory of the Mann 16-27H and Paul Peter Coffey 4-35H Dual Well Pad and Access Road on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2009. An unpublished report submitted to BIA, Great Plains Regional Office.

Stephanie Lechert and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Packineau 15-32H Well Pad and Access Roads on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2009. An unpublished report submitted to BLM, North Dakota Field Office.

Stephanie Lechert, Nelson Klitzka, and Judith Cooper. *Addendum to the Class III Cultural Resource Inventory of the Arrow Phase 1B Prime Pipeline on the Fort Berthold Indian Reservation, Dunn County, North Dakota, to Authorize Land Use for the Dakota-3 Packineau #15-32H/Dakota-3 Skunk Creek #1-12H Gathering Pipelines*. 2010. An unpublished report submitted to BIA, Great Plains Regional Office.

Stephanie Lechert, Nelson Klitzka, and Judith Cooper. *A Class I and Class III Cultural Resource Inventory and Evaluative Shovel Testing of the Zenergy Dakota-3 Helena Ruth Grant #33-34H Well Pad, Access*

Road, and Gathering Pipeline, Fort Berthold Indian Reservation, Dunn County, North Dakota. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

Stephanie Lechert, Jon Markman, and Judith Cooper. *A Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 148-94-19D-18-1H and Fort Berthold 148-94-30A-31-1H Dual Well Pad and Access Road, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

Stephanie Lechert, Jon Markman, Nelson Klitzka, and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Petro-Hunt Fort Berthold 148-94-29B-32-1H Well Pad and Access Road, Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

Stephanie Lechert, Victoria Rose, and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Packineau 3-32H and Packineau 4-32 Well Pads and Access Roads on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2009. An unpublished report submitted to BIA, Great Plains Regional Office.

David J. Meltzer, Ryan M. Byerly, Judith R. Cooper, Matthew E. Hill, Jason M. LaBelle, and John D. Seebach. 2005. QUEST Archaeological Research Fund: Summary of Activities 2004-2005. Report on file, Department of Anthropology, SMU, Dallas.

David J. Meltzer, Brian N. Andrews, Michael D. Cannon, Judith R. Cooper, Dan H. Mann, Joanna C. Roberson, and John D. Seebach. 2004. Quest Archaeological Research Fund: Summary of field and laboratory research, 2003-2004. Report on file, Department of Anthropology, SMU, Dallas.

Karen Reed and Judith Cooper. *A Class I and Class III Cultural Resources Inventory of the Arrow Midstream Holdings Pipeline Northern Extension, Fort Berthold Indian Reservation, Dunn and McKenzie Counties, North Dakota: Addendum 1*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

Karen Reed, Chris Millington, Michelle Delmas, Matthew Bandy, Ryan Byerly, John Kennedy, Josh Tatman, Beau DeBoer, Todd Kohler, Rebecca Schwendler, George Connell, R. Ashley Fife, Lauren Frink, Scott Bowen, Michael J. Retter, Vanesa Zeitz, Paul Burnett, Thomas A. Witt, Sean Doyle, Nicole Kromarek, Emily Bitterman, Caryn Berg, Jennifer Long, Courtney Higgins, Gina Clingerman, Erin Salisbury, Norma Crumbley, Carrie J. Riordan, Jason Burkard, Judy Cooper, Sarah Baer, Scott Phillips, Zonna Barnes, Scott Slessman, and Anthony Lopez. 2008. *Class III Cultural Resource Inventory of the Piceance Creek 3-D Geophysical Exploration Project Area, Rio Blanco County, Colorado*. Unpublished report submitted to BLM, White River Field Office.

Karen Reed, Michael J. Retter, Michael Cregger, Paul Burnett, Lori Browne, Michelle Delmas, Courtney Higgins, Jason Burkard, Judith Cooper and Scott C. Phillips. 2009. Class III Cultural Resource Inventory for the Paradise 230-kV Transmission Project in Sublette County, Wyoming. Unpublished report submitted to BLM, Pinedale Field Office.

Victoria Rose and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Wicker 34-27H and Wicker 4-34H Well Pads and Access Roads on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2009. An unpublished report submitted to BIA, Great Plains Regional Office.

Jolene Schleicher and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Hess AN-Dinwoodie 153-94-2833H-1 Well Pad and Access Road, McKenzie County, North Dakota*. 2010. Unpublished report submitted to the BLM, North Dakota Field Office.

Jolene Schleicher, Judith Cooper, and Stephanie Lechert. *A Class I and Class III Cultural Resource Inventory of the Zenergy Dakota-3 Gerald Hale #33-28H Well Pad, Access Road, and Gathering Line on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

Jolene Schleicher, Chandler Herson, and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Arrow Pipeline Questar MHA 2-6-1H Gathering Pipeline on the Fort Berthold Indian Reservation, Dunn County, North Dakota*. 2010. Unpublished report submitted to the BIA, Great Plains Regional Office.

Rebecca Schwendler, Sarah Baer, Karen Reed, Scott Phillips, Scott Slessman, Matthew Bandy, Nicole Kromarek, Scott Bowen, Max Wolk, Caryn M. Berg, Paul Burnett, Tom Witt, Sean Doyle, Michelle Delmas, Michael Cregger, John Kennedy, Judy Cooper, Zonna Barnes, Amanda Cohen, Cynthia Manseau, Michael Retter, Dan Shosky, Erin Salisbury. *A Class III Cultural Resource Inventory for the Ryan Gulch 3-D Geophysical Exploration Project, Rio Blanco, Colorado*. 2008. Unpublished report submitted to BLM, White River Field Office.

Nicholas Smith and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the Hess AN-Gudbranson 157-94-2215H-1 Well Pad and Access Road, McKenzie County, North Dakota*. 2010. Unpublished report submitted to the BLM, North Dakota Field Office.

Thomas Witt, Stephanie Lechert, and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the EOG Mandaree 3-08H Well Pad and Access Road, Fort Berthold Indian Reservation, McKenzie County, North Dakota*. 2009. Unpublished report submitted to the BIA, Great Plains Regional Office.

Vincent Wray and Judith Cooper. *A Class I and Class III Cultural Resource Inventory of the EOG Resources Van Hook 107-1411H Well Pad and Access Road, Mountrail County, North Dakota*. 2010. Unpublished report submitted to the BLM, North Dakota Field Office.

Vanessa Zietz and Judith Cooper. *Questar Energy Cultural Resource Inventory for Well Pad MHA 1-08H-149-9*. 2009. An unpublished report submitted to BIA, Great Plains Regional Office.

Vanesa Zietz, Judith Cooper, Zonna Barnes, Nelson Klitzka, Courtney Higgins, Carolyn Riordan, Nicole Kromarek, Thomas Witt, Sean Doyle, Scott A. Slessman, Erin Salisbury, and Michael Retter. *Class III Cultural Resources Survey for the Steele City Segment in Montana of the Keystone XL Project, Dawson, Fallon, McCone, Phillips, Prairie, and Valley Counties, Montana, Addendum 2: Additional Fieldwork Results*. 2009. Unpublished report submitted to AECOM.

Vanessa Zietz, Nicole Kromarek, Thomas Witt, Sarah Baer, Judy Cooper, Guy Hepp, Michael J. Retter. *Class III Cultural Resource Inventory for Tri-State's Gore Pass - Windy Gap 115kV Transmission Line Permit Reauthorization Project, Grand County, Colorado*. 2008. Unpublished report submitted to BLM, Kremmling Field Office.

Sessions Organized / Chaired

Cooper, Judith R. (session chair). "Plains Archaeology," a session at the 66th Plains Anthropological Conference, Laramie, Wyoming, 2008.

Cooper, Judith R. (session chair). "Developing Method and Theory in Archaeology," a session at the 106th American Anthropological Association (AAA) Meeting, Washington, D.C., 2007.

Cooper, Judith R. (organized with Ryan M. Byerly). "Research in Bison and Human Paleoecology on the Great Plains," a poster session at the 64th Plains Anthropological Conference, Topeka, Kansas, 2006.

Presentations at Professional Meetings

Cooper, Judith R. 2012. Pre-Contact Bison Hunting on the Great Plains. A paper presented at the North Dakota Archaeological Association, Jamestown, North Dakota.

Kennedy, John, Dave Vlcek, Paul Burnett, and Judith Cooper. 2010. 10,000 Years in the Upper Green. A poster presented at the 68h Plains Anthropological Conference, Bismarck, North Dakota.

Cooper, Judith R., Norma Crumbley, and John Kennedy. 2010. High Elevation Landscape Use in the Upper Green River Basin of Western Wyoming: Exploring Ecological and Cultural Mosaics. A paper presented at the Society of American Archaeology (SAA) 75th Annual Meeting, St. Louis.

Cooper, Judith R., Norma Crumbley, and John Kennedy. 2009. Long-term Technological and Land-use Patterns in the Jonah Subregion of the Upper Green River Basin, Western Wyoming. A poster presented at the 67h Plains Anthropological Conference, Norman, Oklahoma.

Cooper, Judith R., Norma Crumbley, Michael Cregger, and George Connell. 2009. Brush Fences and Human Landscape Use in the Piceance Basin. A poster presented at the Society of American Archaeology (SAA) 74th Annual Meeting, Atlanta.

Cooper, Judith R. 2008. Bison Hunting and Climate Variability during the Late Holocene. A paper presented at the 66th Plains Anthropological Conference, Laramie, Wyoming.

Cooper, Judith R. 2008. Examining Ecological Relationships in the Late Holocene: a Large-scale Analysis of Bison Use in the Great Plains. A paper presented at the Society of American Archaeology (SAA) 73rd Annual Meeting, Vancouver, B.C.

Cooper, Judith R. 2007. Contextualizing Great Plains Bison Hunting: Evaluating the Relevance of Historical Analogy in the Prehistoric Kill Record. A paper presented at the 106th American Anthropological Association (AAA) Meeting, Washington, D.C.

Cooper, Judith R. 2007. Teasing out Technologies: Investigations at a Quartzite Workshop (5GN149) near Gunnison, Colorado. A paper presented at the 2007 Annual Meeting of the Colorado Archaeological Society, Aurora, Colorado.

Cooper, Judith R. 2007. Exploring Spatial Variability in Late Prehistoric Bison Utilization on the Great Plains. A paper presented at the Society of American Archaeology (SAA) 72nd Annual Meeting, Austin, Texas.

Cooper, Judith R. 2006. Spatial and Temporal Variability in the Late Prehistoric Great Plains Bison Kill Site Record. A poster presented at the 64th Plains Anthropological Conferences, Topeka, Kansas.

Cooper, Judith R., with John P. Laughlin. 2006. Testing a GIS-Based Model for Lithic Refitting: An Example from Barger Gulch Locality B. A paper presented at the SAA 71st Annual Meeting, San Juan, Puerto Rico.

Cooper, Judith R. 2005. Intrasite Spatial Analysis at 5GN149, a Surface Lithic Scatter in the Gunnison Basin. A poster presented at the 7th Biennial Rocky Mountain Anthropological Conference, Park City, Utah.

Cooper, Judith R. 2005. Solving Puzzles Using GIS? A Model for Stone Tool Refitting. A paper presented at the SAA 70th Annual Meeting. Salt Lake City, Utah.

Cooper, Judith R. 2004. Predicting Bison Drive Lanes at Bonfire Shelter: a GIS Approach to Understanding Prehistoric Landscape Use. A paper presented at the 75th Texas Archaeological Conference, College Station, Texas.

Cooper, Judith R. 2004. Technological and Refitting Analyses at 5GN149, a Lithic Workshop with Possible Paleoindian Affinities. A poster presented at the SAA 69th Annual Meeting, Montreal, Quebec.

Cooper, Judith R., with Brian N. Andrews. 2003. A Preliminary Report on a Possible Clovis Workshop in the Gunnison Basin, Colorado. A paper presented at the 61st Plains Anthropological Conference, Fayetteville, Arkansas.

Miscellaneous Presentations

Cooper, Judith R., Damien Reinhart, and William Harding. 2013. Cultural Resource Management Overview. Presentation to the Mandan Hidatsa Arikara (Three Affiliated) Tribes, Tribal Energy Office, Fort Berthold Indian Reservation, New Town, North Dakota.

Cooper, Judith R. 2009. From Lithic Scatters to Bison Kills: Using GIS at Different Scales of Archaeological Investigation. Guest speaker at the Indian Peaks Chapter of the Colorado Archaeology Society, Boulder, Colorado.

Cooper, Judith R. 2008. Communal Hunting and the Role of Bison in Great Plains Prehistory. Guest speaker at the Northern Colorado Chapter of the Colorado Archaeology Society, Fort Collins, Colorado.

Cooper, Judith R. 2007. Exploring Geographic Variability in Great Plains Bison Hunting. Guest lecturer, SMU Anthropology Club Brown Bag Lecture Series, Dallas, Texas.

Cooper, Judith R. 2007. Great Plains Prehistory: The Role of Bison. Invited class lecturer, ANTH 3304 North American Archaeology, Dr. Torben Rick, SMU, Dallas, Texas.

Cooper, Judith R. 2005. GIS and Paleoindian Archaeology: Bonfire Shelter, Texas, a Case Study. Exhibit displayed in the SMU Fondren Library Center, Dallas, Texas.

Cooper, Judith R. 2005. Modeling Bison Drive Lanes at Bonfire Shelter Using GIS. Guest speaker at Tarrant County Archaeological Society Meeting, Fort Worth, Texas.

Cooper, Judith R. 2004. Site 5GN149, Gunnison County, Colorado. A website accessible at http://www.smu.edu/anthro/QUEST/Projects/5GN149.htm.

Cooper, Judith R. 2004. Modeling Bison Jump Dynamics at Bonfire Shelter. A website, accessible at http://www.smu.edu/anthro/QUEST/Projects/Bonfire%20Rockshelter/home.htm.

Professional Affiliations / Committees / Service

- North Dakota State Historic Preservation Review Board, Committee Member (2012-2013)
- Society for American Archaeology
- Plains Anthropological Society
- Reviewer for *American Antiquity,* the principal journal of the Society for American Archaeology, and *Plains Anthropologist*, the journal of the Plains Anthropological Society
- Served on Plains Anthropological Society Native American Student Award committee, October 2011

Grants / Fellowships / Awards

- Dissertation Writing Fellowship, Anthropology Department, Southern Methodist University ($12,000), 2007–2008
- Dissertation Improvement Grant, National Science Foundation ($11,999), 2006–2008
- Student Development Grant (four-time recipient), Research and Graduate Studies, Southern Methodist University (total $1,600), 2004–2008
- Steed Travel Award (five-time recipient), Anthropology Department, Southern Methodist University (total $1,148), 2004–2008
- Travel Award (eight-time recipient), Graduate Student Assembly, Dedman College, Southern Methodist University ($1,830), 2002–2007
- Graduate Research Grant (co-recipient with Ryan M. Byerly), William P. Clements Center for Southwest Studies, Southern Methodist University ($385), 2005
- Departmental Tuition Award, Anthropology Department, Southern Methodist University ($9,540), 2004–2005
- Departmental Tuition Award, Anthropology Department, Southern Methodist University ($17,748), 2003–2004

- Departmental Tuition Award, Anthropology Department, Southern Methodist University ($16,506), 2002–2003
- Phi Beta Kappa, Lambda Chapter of Pennsylvania State University, 2001

APPENDIX B

AUGER PROBE AND SHOVEL TEST DATA

Appendix B. Auger Probe and Shovel Test Data

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
AP01		0–25	N	7.5YR3/3	clay loam		Auger probe; south of Beals Creek.
		25–35	N	5YR3/4	clay		
		35–50	N	7.5YR4/2	clay	$CaCO_3$ flecking, root casts	Terminated due to compact soil.
AP02		0–30	N	5YR4/6	clay loam		Auger probe; south of Beals Creek.
		30–60	N	5YR5/6	silty clay		
		60–120	N	5YR4/4	silty clay		Terminated due to compact soil.
AY21	41ST187	0–30	N	7.5YR3/4	loamy clay	rootlets, organics	
		30–40	N	5YR5/4	clay	few gravels	Terminated at basal clay.
AY22	41ST187	0–30	N	7.5YR3/4	loamy clay	rootlets, organics	
		30–40	N	5YR5/4	clay	10% dark brown mottles	Terminated at basal clay.
AY23	41ST187	0–30	N	7.5YR3/4	loamy clay	rootlets, organics	
		30–40	N	5YR5/4	clay	calcareous inclusions	Terminated at basal clay.
AY24	41ST187	0–25	N	7.5YR3/4	loamy clay	mycorrhizal fungi	
		25–40	N	5YR5/4	clay	calcareous inclusions	Terminated at basal clay.
AY25		0–35	N	7.5YR4/4	silty clay	5% limestone gravels	Terminated at limestone cobbles.
AY26		0–30	N	7.5YR4/4	silty clay	5% limestone gravels and cobbles	Terminated at limestone cobbles.
AY27		0–10	N	7.5YR3/2	silty clay	rootlets, organics	
		10–50	N	7.5YR4/4	silty clay	rounded limestone gravels	Terminated at limestone cobbles.
AY28		0–50	N	7.5YR4/4	silty clay	limestone microgravels	Terminated due to compact soil.
AY29		0–20	N	7.5YR3/2	loamy clay	rootlets, organics	
		20–50	N	7.5YR4/4	silty clay	limestone microgravels	Terminated at basal clay.
AY30		0–10	N	7.5YR3/2	loamy clay	rootlets, organics, rare gravel	
		10–35	N	7.5YR4/4	silty clay	calcareous gravels	Terminated at basal clay.
AY31		0–10	N	7.5YR3/2	loamy clay	rootlets, organics, rare gravel	
		10–40	N	7.5YR4/4	silty clay	calcareous gravels	Terminated at basal clay.
AY32		0–30	N	7.5YR3/4	loamy clay	many rootlets and organics	
		30–40	N	7.5YR4/4	silty clay	dark brown mottling and microgravels	Terminated at basal clay.
AY33		0–20	N	7.5YR3/2	loamy clay	dark brown mottling and microgravels	
		20–30	N	7.5YR4/4	silty clay	30% limestone gravels and cobbles	Terminated at limestone cobbles.
AY34		0–30	N	7.5YR3/2	loamy clay	dark brown mottling and microgravels	
		30–50	N	7.5YR4/4	silty clay	30% limestone gravels and cobbles	Terminated at limestone cobbles.
AY35		0–20	N	7.5YR3/2	loamy clay	rootlets and organics	
		20–50	N	7.5YR4/4	silty clay	angular limestone fragments	Terminated at bedrock.
AY36		0–10	N	7.5YR3/2	loamy clay	rootlets and organics	
		10–50	N	7.5YR4/4	silty clay	limestone and quartz gravels; dark brown mottling	Terminated due to compact soil.
AY37		40–50	N	7.5YR6/1	silty loam	75% mixed gravels	Terminated at basal clay.

Appendix B. Auger Probe and Shovel Test Data

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
AY38		0–10	N	7.5YR4/4	loam	road gravel	Terminated due to disturbance.
AY39		0–55	N	7.5YR4/4	silty clay	rootlets; 20% calcareous gravels	Terminated at basal clay.
AY40		0–50	N	7.5YR4/4	silty clay	calcareous gravels	Terminated at basal clay.
AY41		0–50	N	7.5YR4/4	sandy clay	rootlets; limestone gravels; $CaCO_3$ filaments at base	Terminated at basal clay.
AY42		0–50	N	7.5YR4/4	sandy clay	rootlets; limestone gravels; $CaCO_3$ filaments at base	Terminated at basal clay.
AY43		0–45	N	7.5YR4/4	sandy clay	rootlets; limestone gravels; $CaCO_3$ filaments at base	Terminated at basal clay.
AY44		0–50	N	7.5YR5/4	sandy clay	rootlets; $CaCO_3$ nodules at base	Terminated at basal clay.
AY45		0–40	N	7.5YR3/2	loamy clay	roots, rootlets; limestone cobbles	Terminated at limestone cobbles.
AY46		0–40	N	7.5YR3/2	loamy clay	roots, rootlets; limestone cobbles	Terminated due to compact soil.
AY47		0–30	N	7.5YR5/4	sandy clay	5% small gravels; limestone cobbles at base	Terminated at limestone cobbles.
AY48		0–40	N	7.5YR4/2	loamy clay	rootlets and organics	Terminated due to compact soil.
AY49		0–30	N	7.5YR3/2	loamy clay	roots, rootlets	
		30–40	N	10YR5/4	loamy clay	rootlets; $CaCO_3$ filaments	Terminated at basal clay.
AY50		0–35	N	7.5YR5/4	silty clay	$CaCO_3$ nodules	Terminated at basal clay.
AY51		0–50	N	7.5YR4/4	sandy clay	40% rounded mixed gravels; 15% calcareous gravels at base	Terminated due to dense gravel.
AY52		0–60	N	7.5YR4/4	sandy clay	40% rounded mixed gravels; 15% calcareous gravels at base	Terminated due to dense gravel.
AY53		0–60	N	7.5YR4/4	sandy clay	40% rounded mixed gravels; 15% calcareous gravels and degraded bedrock at base	Terminated at bedrock.
AY54		0–30	N	7.5YR5/4	sandy clay	20% rounded mixed gravels; roots, rootlets	
		30+	N	5YR5/6	clay	faint dark brown mottling	Terminated at basal clay.
AY55		0–5	N	5YR5/6	sandy clay	30% mixed gravels and degraded bedrock	Terminated at bedrock.
AY56		0–35	N	7.5YR4/2	loamy clay	5% mixed gravels; roots, rootlets	
		35–45	N	5YR4/3	clay	rootlets	Terminated at basal clay.
AY57		0–30	N	2.5YR5/4	loamy clay	10% mixed gravels; roots, rootlets	
		30–35	N	5YR4/3	clay	dark brown mottling and rootlets	Terminated at basal clay.
AY58		0–20	N	5YR4/4	sandy clay loam	roots, rootlets, organics	
		20–30	N	2.5YR4/6	loamy clay	small, gray clay nodules	Terminated at basal clay.
AY59		0–30	N	2.5YR4/6	loamy clay	rootlets; $CaCO_3$ filaments	Terminated at basal clay.

Appendix B. Auger Probe and Shovel Test Data

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
AY60		45–50	N	5YR5/6	clay	rootlets; faint dark brown mottling	Terminated at basal clay.
AY61		0–40	N	2.5YR4/6	loamy clay	10% mixed gravels; roots, rootlets	Located near lithic flake on surface.
		40–45	N	5YR5/4	clay	roots, rootlets; few $CaCO_3$ filaments	Terminated at basal clay.
AY62		0–30	N	2.5YR5/4	loamy clay	roots, rootlets; few rounded gravels	
		30–40	N	2.5YR4/6	clay	rootlets	Terminated at basal clay.
AY63		0–25	N	2.5YR5/4	loamy clay	roots, rootlets; few rounded gravels	
		25–45	N	2.5YR4/6	clay	rootlets	Terminated at basal clay.
AY64		0–30	N	2.5YR5/4	loamy clay	roots, rootlets; few rounded gravels	
		30–45	N	2.5YR4/6	clay	rootlets	Terminated at basal clay.
AY65		0–20	N	2.5YR4/6	loamy clay	roots, rootlets, organics	
		20–30	N	5YR5/6	clay	rootlets	Terminated at basal clay.
AY66		0–10	N	2.5YR4/6	loamy clay	roots, rootlets, organics	
		10–30	N	5YR5/6	clay	rootlets	Terminated at basal clay.
AY67		0–50	N	2.5YR4/6	sandy clay	roots, rootlets; 30% mixed gravels; limestone cobbles at base	Terminated due to cobbles.
AY68		0–15	N	2.5YR5/4	gravelly loam	50% gravels	
		15–30	N	5YR5/4	clay	rootlets	Terminated at basal clay.
AY69		0–10	N	2.5YR4/6	gravelly loam	80% gravels	Terminated due to dense gravel.
AY70		0–25	N	7.5YR5/4	sandy loam	roots, rootlets	
		25–30	N	7.5YR4/2	sandy clay	rootlets	Terminated at basal clay.
AY71		0–70	N	7.5YR4/4	sandy loam	rare gravels	Terminated due to compact soil.
AY72		0–60	N	7.5YR4/4	sandy loam	organics	
		60–70	N	7.5YR5/4	sandy clay	mottling	Terminated due to compact soil.
AY73		0–70	N	7.5YR4/4	sandy loam		Terminated due to compact soil.
AY74		0–40	N	7.5YR4/4	sandy loam	roots, rootlets	
		40–50	N	2.5YR4/4	sandy clay	rootlets; dark brown mottling	Terminated at basal clay.
AY75		0–40	N	7.5YR4/4	sandy loam	roots, rootlets	
		40–50	N	2.5YR4/4	clay	rootlets; dark brown mottling	Terminated at basal clay.
AY76		0–40	N	7.5YR4/4	sandy clay	rootlets; few limestone cobbles; large $CaCO_3$ nodules at base	Terminated at basal clay.
AY77		0–40	N	7.5YR4/4	sandy clay	rootlets; few limestone cobbles; large $CaCO_3$ nodules at base	Terminated at basal clay.
AY78		0–20	N	7.5YR5/4	sandy loam	rootlets; road gravels	
		20–30	N	5YR5/6	clay	rootlets	Terminated at basal clay.

Appendix B. Auger Probe and Shovel Test Data

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
AY79		0–70	N	7.5YR4/4	sandy loam	rootlets, organics; $CaCO_3$ nodules at base	Terminated at basal clay.
AY80		0–60	N	7.5YR4/4	sandy loam	rootlets, organics; $CaCO_3$ nodules at base	
		60–70	N	5YR5/4	sandy clay	rootlets	Terminated at basal clay.
AY81		0–30	N	7.5YR4/4	sandy loam	rootlets, organics; small chunk of asphalt	
		30–55	N	5YR5/6	sandy clay	rootlets	Terminated at basal clay.
AY82	41MH95	0–30	N	7.5YR4/4	sandy clay	rootlets; $CaCO_3$ nodules at base	Terminated at basal clay.
AY83	41MH95	0–30	N	5YR5/6	sandy clay	roots, rootlets; few rounded gravels; $CaCO_3$ nodules at base	Terminated at basal clay.
AY84	41MH95	0–35	**P**	7.5YR5/4	sandy clay loam		**0–15cmbs: 3 porcelain doll leg pieces, 1 wire nail, 3 wire fragments, 1 window glass shard, 1 clear bottle glass shard, 1 clear glass jar rim shard, 1 large piece of miscellaneous metal, 1 unidentified copper cap; 20–30cmbs: 1 copper washer, 1 whiteware sherd, 1 clear bottle glass shard, 1 wire fragment, 1 small miscellaneous metal fragment.** Terminated at basal clay.
AY85		0–45	N	5YR5/6	sandy clay	mixed gravels; limestone cobbles; $CaCO_3$ filaments at base	Terminated at basal clay.
AY86		0–50	N	5YR5/6	sandy clay	mixed gravels; limestone cobbles; $CaCO_3$ filaments at base	Terminated at basal clay.
AY87		0–35	N	5YR5/6	sandy clay	mixed gravels; limestone cobbles; $CaCO_3$ filaments at base	Terminated at basal clay.
AY88		0–30	N	5YR5/4	sandy clay	mixed gravels; $CaCO_3$ filaments at base	Terminated at basal clay.
AY89		0–20	N	5YR4/6	gravelly loam	mixed gravels; $CaCO_3$ filaments at base	Terminated at basal clay.
AY90		0–30	N	5YR4/2	loamy clay	roots, rootlets, organics	Terminated at basal clay.
AY91		0–25	N	5YR4/2	loamy clay	roots, rootlets; few large cobbles	Terminated due to dense cobbles.
AY92		0–30	N	5YR4/2	loamy gravelly clay	roots, rootlets; 30% mixed gravels	
		30–35	N	2.5YR4/6	loamy gravelly clay	dark brown mottling	Terminated at basal clay.
AY93		0–50	N	7.5YR4/4	sandy loam	rootlets; 2% rounded gravels; 10% $CaCO_3$ nodules at base	Terminated at basal clay.
AY94		0–50	N	5YR5/4	sandy clay loam	rootlets; 10% gravel	
		50–55	N	5YR5/1	gravelly sand	30%$CaCO_3$ nodules and filaments	Terminated at basal clay.
AY95		0–35	N	5YR5/6	loamy clay	roots, rootlets; 2% rounded gravels; 5% $CaCO_3$ filaments	Terminated at basal clay.
AY96		0–40	N	5YR5/6	loamy clay	roots, rootlets; 2% rounded gravels; 5% $CaCO_3$ filaments	Terminated at basal clay.

Appendix B. Auger Probe and Shovel Test Data

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
AY97		0–30	N	5YR4/6	gravelly sand	30% gravel; $CaCO_3$ nodules at base	Terminated at basal clay.
AY98		0–30	N	5YR4/2	loamy clay	roots, rootlets	
		30–35	N	5YR4/6	clay	rootlets	Terminated at basal clay.
KS01		0–60	N	7.5YR3/4	clay loam	2% gravels	Terminated due to compact soil.
KS02	41ST187	0–35	N	7.5YR3/4	clay loam	10% gravels and chert cobbles	
		35–40	N	7.5YR3/4	clay loam	50% gravels and chert cobbles	Terminated at bedrock.
KS03	41ST187	0–40	N	7.5YR2.5/3	clay loam	7.5YR2.5/1 mottles; 2% gravels	Terminated due to compact soil.
KS04	41ST187	0–40	N	7.5YR2.5/1	clay loam	2% limestone gravels	Terminated due to compact soil.
KS05	41ST187	0–40	N	7.5YR3/4	clay loam	7.5YR2.5/1 mottles; 2% gravels	Terminated due to compact soil.
KS06		0–40	N	7.5YR3/4	clay loam	7.5YR2.5/1 mottles; 5% limestone gravels	Terminated due to compact soil.
KS07		0–30	N	7.5YR3/4	clay loam	7.5YR2.5/1 mottles; 10% limestone cobbles	Terminated due to compact soil.
KS08		0–35	N	7.5YR3/4	clay loam	7.5YR2.5/1 mottles; 15% large limestone cobbles	Terminated due to compact soil.
KS09		0–30	N	7.5YR3/4	clay loam	7.5YR2.5/1 mottles; 2% gravels	
		30–35	N	7.5YR3/4	clay loam	7.5YR2.5/1 mottles; 30% limestone gravels	Terminated due to compact soil.
KS10		0–30	N	7.5YR3/4	clay loam	7.5YR2.5/1 mottles; 2% gravels	Terminated due to compact soil.
KS11		0–35	N	7.5YR2.5/1	clay loam	2% gravels	Terminated due to compact soil.
KS12		0–40	N	7.5YR3/4	clay loam	5% gravels and degraded limestone	Terminated due to compact soil.
KS13		0–40	N	7.5YR2.5/1	clay loam		Terminated due to compact soil.
KS14		0–30	N	7.5YR2.5/1	clay loam	limestone gravels	Terminated due to compact soil.
KS15		0–30	N	7.5YR3/4	clay loam	40% limestone gravels	
		30–40	N	7.5YR3/4	clay loam	tree root	Terminated due to compact soil.
KS16		0–30	N	7.5YR3/4	clay loam	5% limestone gravels	
		30–35	N	7.5YR3/4	clay loam		Terminated due to compact soil.
KS17		N/A	N	N/A	N/A		Terminated due to disturbance.
KS18		0–35	N	7.5YR3/4	clay loam	degraded limestone gravels	Terminated due to compact soil.
KS19		0–55	N	7.5YR3/4	clay loam	5% chert and limestone gravels and cobbles	Terminated due to compact soil.
KS20		0–25	N	7.5YR4/4	clay loam	gravels and cobbles	Terminated at bedrock.
KS21		0–55	N	7.5YR4/4	silty clay loam	10% gravels near base	Terminated due to compact soil.
KS22		0–50	N	7.5YR4/4	silty clay loam	10% gravels near base	Terminated due to compact soil.
KS23		0–50	N	7.5YR4/4	silty clay loam	10% gravels near base	Terminated due to compact soil.
KS24		0–45	N	7.5YR4/4	clay loam	2% gravels	Terminated due to compact soil.
KS25		0–40	N	7.5YR4/4	clay loam		Terminated due to compact soil.

Appendix B. Auger Probe and Shovel Test Data

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
KS26		0–50	N	7.5YR3/4	silty clay loam	20% gravels	Terminated due to compact soil.
KS27		0–55	N	7.5YR2.5/3	silty clay loam		Terminated due to compact soil.
KS28		0–45	N	7.5YR2.5/3	clay loam	roots	Terminated due to compact soil.
KS29		0–30	N	5YR3/4	silty clay loam	2% gravels	
		30–45	N	5YR3/4	silty gravelly loam	50% gravels	Terminated due to dense gravel.
KS30		0–25	N	5YR3/4	silty loam	2% gravels	
		25–30	N	5YR3/4	silty loam	50% gravels	Terminated due to dense gravel.
KS31		0–25	N	5YR3/4	silty clay loam	fencing materials	Terminated due to disturbance.
KS32		0–20	N	5YR3/3	silty loam	2% gravels	
		20–30	N	5YR3/2	silty gravelly loam	20% gravels	Terminated due to compact soil.
KS33		0–45	N	7.5YR3/4	silty clay loam	5% gravels	
		45–50	N	7.5YR3/4	gravelly loam	5% gravels	Terminated due to compact soil.
KS34		0–25	N	5YR3/4	gravelly clay loam	2.5YR4/6 mottles	
		25–40	N	5YR3/4	clay loam	2.5YR4/6 mottles; small gravels	Terminated due to compact soil.
KS35		0–35	N	5YR3/4	sandy clay loam	2.5YR4/6 mottles	Terminated due to disturbance.
KS36		0–40	N	5YR3/4	clay loam	2.5YR4/6 mottles; 5% gravels	Terminated due to compact soil.
KS37		0–35	N	5YR3/4	clay		Terminated due to compact soil.
KS38	41MH96	0–35	N	5YR3/4	clay loam		Flake found on surface nearby. Terminated due to compact soil.
KS39		0–10	N	5YR3/4	sandy loam		Terminated at bedrock.
KS40		0–35	N	5YR3/4	silty loam	10% gravels	Terminated due to compact soil.
KS41		0–40	N	7.5YR3/4	silty clay loam		Terminated due to compact soil.
KS42		0–40	N	7.5YR4/6	silty loam		Terminated due to compact soil.
KS43	41MH95	0–50	**P**	5YR3/4	silty loam		**0–50 cmbs: historic glass, 1 metal button with "WEST" backmark, and 1 nail.** Terminated due to compact soil.
KS44		0–40	N	5YR4/6	silty loam		Terminated due to compact soil.
KS45		0–55	N	5YR4/6	silty loam	7.5YR5/4 mottles; 5% gravels	Terminated due to compact soil.
KS46		0–25	N	5YR4/6	silty loam		Terminated due to disturbance.
KS47		0–70	N	5YR4/4	silty loam		Terminated due to compact soil.
KS48		0–65	N	5YR4/6	silty loam	2% gravels	Terminated due to compact soil.
KS49		0–45	N	7.5YR3/4	silty loam	2% gravels	Terminated due to compact soil.
KS50		0–40	N	7.5YR3/4	silty loam	2% gravels	Terminated due to compact soil.
KS51		0–35	N	7.5YR3/4	silty loam	2% gravels	Terminated due to compact soil.
KS52		0–40	N	7.5YR3/4	silty loam	2% gravels	Terminated due to compact soil.
KS53		0–55	N	5YR4/6	sandy loam	7.5YR5/4 mottles; 5% gravels; $CaCO_3$ at base	Terminated due to compact soil.
KS54		0–60	N	7.5YR5/4	silty loam	7.5YR5/4 mottles; 5% gravels; $CaCO_3$ at base	Terminated due to compact soil.

Appendix B. Auger Probe and Shovel Test Data

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
KS55		0–25	N	5YR4/6	silty loam		
		25–35	N	7.5YR2.5/3	silty clay loam		Terminated due to compact soil.
KS56		0–30	N	7.5YR5/4	silty loam		
		30–40	N	7.5YR2.5/3	clay	2% gravels	Terminated due to compact soil.
KS57		0–45	N	7.5YR3/4	silty clay loam	rootlets; 2% gravels	Terminated due to compact soil.
KS58		0–35	N	5YR3/4	silty loam	50% gravels	Terminated due to compact soil.
MC01		0–30	N	7.5YR3/4	sandy clay loam	few gravels	
		30–40	N	7.5YR4/6	clay loam		Terminated at basal clay.
MC02	41MH93	0–40	**P**	10YR3/3	sandy clay loam		**0–40 cmbs: 1 chert secondary flake.**
		40–45	N	7.5YR4/6	clay loam	10% $CaCO_3$ nodules	Terminated at basal clay.
MC03	41MH93	0–40	N	10YR3/3	sandy clay loam		
		40–45	N	7.5YR4/6	clay loam	1% $CaCO_3$ nodules	Terminated at basal clay.
MC04		0–30	N	10YR3/3	sandy clay loam		
		30–35	N	7.5YR4/6	clay loam	1% $CaCO_3$ nodules	Terminated at basal clay.
MC05		0–30	N	10YR3/3	sandy clay loam		
		30–40	N	7.5YR4/6	clay loam	1% $CaCO_3$ nodules	Terminated at basal clay.
MC06		0–30	N	10YR3/3	sandy clay loam		
		30–40	N	7.5YR4/6	clay loam	1% $CaCO_3$ nodules	Terminated at basal clay.
MC07		0–30	N	10YR3/3	sandy clay loam		
		30–35	N	7.5YR4/6	sandy clay loam	$CaCO_3$ nodules and caliche marl	Terminated at basal clay.
MC08		0–30	N	10YR3/4	clay loam		
		30–35	N	7.5YR3/4	clay loam	5% $CaCO_3$ filaments	Terminated at basal clay.
MC09		0–30	N	10YR3/3	clay loam		
		30–35	N	10YR3/3	clay loam	5% $CaCO_3$ nodules and filaments	Terminated at basal clay.
MC10		0–25	N	7.5YR3/4	clay loam		
		25–30	N	7.5YR4/6	sandy clay loam	5% $CaCO_3$ nodules and filaments	Terminated at basal clay.
MC11		0–30	N	7.5YR3/4	clay loam		
		20–35	N	7.5YR4/6	sandy clay loam	5% $CaCO_3$ nodules and filaments	Terminated at basal clay.
MC12		0–30	N	7.5YR3/4	clay loam		
		30–35	N	7.5YR4/6	clay loam	5% $CaCO_3$ nodules and filaments	Terminated at basal clay.
MC13		0–35	N	7.5YR4/6	sandy clay loam		Terminated at bedrock.
MC14	41MH94	0–4	N	10YR3/4	sandy gravelly loam	50% gravels	Terminated at bedrock.
MC15	41MH94	0–3	N	10YR3/4	sandy gravelly loam	50% gravels	Terminated at bedrock.
MC16		0–20	N	10YR3/4	gravelly clay loam	20% gravels	Terminated at bedrock.
MC17		0–2	N	10YR3/4	sandy gravelly loam	70% gravels	Terminated at bedrock.
MC18		0–2	N	10YR3/4	sandy gravelly loam	70% gravels	Terminated at bedrock.

Appendix B. Auger Probe and Shovel Test Data

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
MC19		0–50	N	7.5YR4/6	sandy loam		
		50–55	N	7.5YR4/6	sandy clay loam	10% $CaCO_3$ filaments	Terminated at basal clay.
MC20		0–40	N	7.5YR3/4	sandy loam		
		40–45	N	7.5YR4/6	silty clay		Terminated at basal clay.
MC21		0–30	N	7.5YR4/3	sandy clay loam		
		30–35	N	7.5YR4/6	clay loam		Terminated at basal clay.
MC22		0–25	N	7.5YR4/3	sandy clay loam		
		25–30	N	7.5YR4/6	clay loam		Terminated at basal clay.
MC23		0–30	N	7.5YR4/3	sandy clay loam		
		30–35	N	7.5YR4/6	clay loam		Terminated at basal clay.
MC24		0–15	N	7.5YR4/6	sandy clay loam		
		15–20	N	7.5YR4/6	sandy clay		Terminated at basal clay.
MC25		0–25	N	7.5YR3/3	sandy loam		
		25–30	N	7.5YR4/6	sandy clay		Terminated at basal clay.
MC26		0–25	N	7.5YR3/3	sandy loam		
		25–30	N	7.5YR4/6	sandy clay		Terminated at basal clay.
MC27		0–25	N	7.5YR4/6	sandy clay loam		
		25–30	N	7.5YR4/6	gravelly sandy clay loam	$CaCO_3$ nodules	Terminated at basal clay.
MC28		0–60	N	7.5YR4/4	sandy loam		
		60–65	N	7.5YR4/6	sandy clay		Terminated at basal clay.
MC29		0–40	N	7.5YR4/4	sandy loam		
		40–45	N	7.5YR4/6	sandy clay		Terminated at basal clay.
MC30		0–30	N	5YR4/4	sandy clay		
		30–50	N	5YR6/4	clay		Terminated at basal clay.
MC31	41MH96	0–30	N	5YR4/4	clay		Terminated due to compact soil.
MC32	41MH96	0–25	N	7.5YR3/4	sandy clay loam		
		25–30	N	7.5YR4/6	sandy clay		Terminated at basal clay.
MC33	41MH96	0–35	N	7.5YR3/4	sandy clay loam		
		35–40	N	7.5YR4/6	sandy clay		Terminated at basal clay.
MC34		0–5	N	7.5YR4/6	gravelly sandy clay	50% gravels	Terminate due to dense gravel.
MC35		0–10	N	5YR4/6	gravelly clay	50% gravels	Terminated at bedrock.
MC36		0–15	N	5YR4/6	gravelly clay	40% gravels	Terminated at basal clay.
MC37		0–20	N	10YR4/3	sandy clay loam		
		20–40	N	10YR5/4	sandy loam		Terminated due to compact soil.
MC38		0–15	N	7.5YR4/4	sandy loam		
		15–40	N	10YR4/3	sandy loam		
		40–50	N	10YR5/2	sandy clay loam	$CaCO_3$ filaments	Terminated at basal clay.

Appendix B. Auger Probe and Shovel Test Data

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
MC39		0–10	N	10YR5/4	sandy loam		
		10–40	N	10YR4/3	sandy loam	$CaCO_3$ filaments	
		40–50	N	10YR3/3	sandy clay loam	caliche base	Terminated at basal clay.
MC40		0–45	N	7.5YR4/6	sandy loam		
		45–50	N	7.5YR6/3	clay	$CaCO_3$ filaments	Terminated at basal clay.
MC41		0–20	N	7.5YR4/6	sandy clay loam		Terminated due to disturbance.
MC42		0–50	N	7.5YR4/6	sandy loam		Terminated due to compact soil.
MC43		0–40	N	7.5YR4/6	clay		Terminated due to compact soil.
MC44		0–100	N	7.5YR5/6	sandy loam		Terminated due to depth.
MC45		0–35	N	7.5YR5/6	sandy loam		
		35–40	N	7.5YR6/4	sandy clay		Terminated at basal clay.
MC46		0–50	N	7.5YR5/6	sandy loam		
		50–60	N	10YR5/4	sandy clay loam	5% $CaCO_3$	Terminated at basal clay.
MC47	41MH95	0–20	**P**	7.5YR4/6	sandy loam		**0–20 cmbs: 5 bottle glass shards and 1 piece miscellaneous metal.**
		20–35	**P**	7.5YR4/6	sandy loam		**20–35 cmbs: 1 bottle glass shard and 1 fence staple.** Terminated at caliche.
MC48		0–25	N	10YR4/3	sandy loam		
		25–30	N	7.5YR5/4	sandy clay		Terminated at basal clay.
MC49		0–45	N	10YR3/4	gravelly sandy loam	10% gravels	
		45–50	N	7.5YR6/4	sandy clay		Terminated at basal clay.
MC50		0–25	N	10YR3/4	sandy clay loam		
		25–30	N	7.5YR3/4	sandy clay		Terminated at basal clay.
MC51		0–30	N	10YR3/4	sandy clay loam		
		30–35	N	7.5YR3/4	gravelly sandy clay	10% gravels	Terminated at basal clay.
MC52		0–70	N	7.5YR5/8	gravelly sandy loam	10-30% gravels	
		70–80	N	7.5YR7/3	sand	15% $CaCO_3$ filaments	Terminated at basal clay.
MC53		0–45	N	7.5YR5/8	gravelly sandy loam	10% gravels	
		45–50	N	7.5YR7/3	gravelly sandy loam	5% $CaCO_3$	Terminated at basal clay.
MC54		0–35	N	10YR4/3	sandy loam		
		35–40	N	10YR3/3	clay loam		Terminated at basal clay.
MC55		0–25	N	7.5YR5/6	sandy loam		
		25–30	N	7.5YR6/4	sandy clay		Terminated at basal clay.
MC56		0–30	N	10YR3/4	gravelly sandy loam	10% gravels	
		30–35	N	10YR3/3	sandy clay		Terminated at basal clay.
MC57		0–30	N	10YR3/4	sandy loam		
		30–35	N	10YR3/3	sandy clay		Terminated at basal clay.
MC58		0–30	N	7.5YR4/6	gravelly sandy clay loam	5% gravels	
		30–35	N	7.5YR5/8	sandy clay	1% $CaCO_3$ filaments	Terminated at basal clay.

Appendix B. Auger Probe and Shovel Test Data

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
MS17	41MH93	0–40	N	10YR2/2	clay loam		
		40–45	N	7.5YR4/4	sandy clay	$CaCO_3$ filaments	Terminated at basal clay.
MS18	41MH93	0–40	N	10YR2/2	clay loam		
		40–42	N	7.5YR4/4	sandy clay	$CaCO_3$ filaments	Terminated at basal clay.
MS19		0–35	N	10YR2/2	clay loam		
		35–40	N	10YR4/4	sandy clay	$CaCO_3$ filaments	Terminated at basal clay.
MS20		0–28	N	10YR2/2	clay loam		
		28–31	N	10YR4/4	sandy clay	$CaCO_3$ filaments	Terminated at basal clay.
MS21	IF02	0–40	N	10YR2/2	clay loam		Biface fragment on surface.
		40–43	N	7.5YR4/4	sandy clay	$CaCO_3$ filaments	Terminated at basal clay.
MS22		0–45	N	10YR3/3	clay loam		
		45–50	N	7.5YR5/4	sandy clay	$CaCO_3$ filaments	Terminated at basal clay.
MS23		0–35	N	10YR2/2	clay loam		
		35–38	N	7.5YR4/4	sandy clay	$CaCO_3$ filaments	Terminated at basal clay.
MS24	41MH94	0–5	N	10YR4/3	clay		Near battered core. Terminated at bedrock.
MS25	41MH94	0–5	N	10YR4/3	clay		Terminated at bedrock.
MS26	41MH94	0–7	N	10YR4/3	clay		Terminated at bedrock.
MS27		0–4	N	10YR4/3	clay		Terminated at bedrock.
MS28		0–10	N	10YR4/3	clay loam		Terminated at bedrock.
MS29		0–8	N	10YR4/3	clay loam		Terminated at bedrock.
MS30		0–45	N	10YR4/3	clay loam	few gravels	
		45–50	N	7.5YR4/4	sandy clay		Terminated at bedrock.
MS31		0–50	N	10YR3/3	clay loam		
		50–53	N	7.5YR4/4	sandy clay	$CaCO_3$ filaments	Terminated at basal clay.
MS32		0–10	N	7.5YR4/4	clay loam		Terminated at bedrock.
MS33		0–40	N	7.5YR4/4	clay loam		
		40–42	N	5YR4/4	sandy clay	$CaCO_3$ filaments	Terminated at basal clay.
MS34		0–45	N	7.5YR4/4	clay loam		Terminated at bedrock.
MS35		0–50	N	7.5YR4/4	loam		
		50–75	N	7.5YR4/4	sandy loam	5% mycorrhizal fungi	Terminated due to compact soil.
MS36	41MH96	0–50	N	7.5YR3/3	clay		Terminated due to compact soil.
MS37	41MH96	0–40	N	7.5YR3/3	clay loam		
		40–60	N	5YR3/4	clay		Terminated due to compact soil.
MS38		0–30	N	7.5YR3/3	clay loam		
		30–35	N	5YR3/4	clay	small $CaCO_3$ nodules	Terminated at basal clay.
MS39		0–32	N	7.5YR4/6	sandy loam		
		32–35	N	7.5YR4/4	sandy clay	small gravels; $CaCO_3$ filaments	Terminated due to compact soil.

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
MS40		0–35	N	7.5YR4/6	sandy loam		
		35–40	N	5YR4/4	sandy clay	rootlets	Terminated due to compact soil.
MS41		0–40	N	7.5YR4/6	clay loam		
		40–50	N	10YR3/2	clay		
		50–60	N	7.5YR3/4	sandy clay		Terminated at basal clay.
MS42		0–30	N	7.5YR4/4	clay	10YR4/3 mottles	Terminated due to disturbance.
MS43		0–70	N	7.5YR4/6	sandy loam	3% $CaCO_3$ nodules	
		70–75	N	7.5YR4/6	sandy loam	10% $CaCO_3$ nodules	Terminated due to compact soil.
MS44		0–45	N	7.5YR4/6	sandy loam		
		45–50	N	5YR4/6	sandy clay	$CaCO_3$ filaments	Terminated at basal clay.
MS45		0–26	N	7.5YR3/3	loam	few gravels	
		26–29	N	7.5YR3/1	clay	5YR4/6 mottles; abundant small gravels	Terminated at basal clay.
MS46		0–28	N	7.5YR3/2	clay		
		28–30	N	7.5YR4/4	sandy clay	$CaCO_3$ filaments	Terminated at basal clay.
MS47		0–35	N	7.5YR3/4	clay loam	few gravels	
		35–40	N	5YR3/3	sandy clay	rootlets	Terminated at basal clay.
MS48		0–31	N	7.5YR3/4	clay		
		31–35	N	5YR3/3	sandy clay		Terminated at basal clay.
MS49		0–75	N	7.5YR4/6	loam		
		75–93	N	5YR4/6	sandy clay	2% $CaCO_3$ nodules	Terminated at basal clay.
MS50		0–35	N	5YR4/4	sandy loam		
		35–50	N	7.5YR4/3	clay	rootlets; mycorrhizal fungi	Terminated due to compact soil.
MS51		0–23	N	5YR4/6	clay loam		
		23–30	N	5YR5/6	clay loam	5-10% $CaCO_3$	Terminated at basal clay.
MS52		0–30	N	7.5YR3/4	loam		
		30–35	N	7.5YR3/3	clay	3% $CaCO_3$ filaments	Terminated at basal clay.
MS53		0–30	N	7.5YR3/4	loam		
		30–33	N	7.5YR3/3	clay	$CaCO_3$ filaments	Terminated at basal clay.
MS54		0–31	N	7.5YR3/4	loam		
		31–35	N	7.5YR3/3	clay	$CaCO_3$ filaments	Terminated at basal clay.
MS55		0–25	N	5YR3/3	clay loam		
		25–32	N	5YR3/4	clay	dense gravels	Terminated at basal clay.
MS56		0–5	N	5YR3/4	clay	abundant gravels	Terminated at basal clay.
RW01		0–35	N	10YR3/4	clay loam		
		35–40	N	10YR3/3	clay		Terminated at basal clay.
RW02	41MH93	0–40	N	10YR3/4	clay loam		
		40–45	N	10YR3/3	clay	$CaCO_3$ filaments	Terminated at basal clay.
RW03		0–30	N	10YR3/3	clay loam		
		30–35	N	7.5YR4/3	clay	$CaCO_3$ filaments	Terminated at basal clay.

Appendix B. Auger Probe and Shovel Test Data

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
RW04		0–30	N	7.5YR4/3	clay	$CaCO_3$ filaments	Terminated at basal clay.
RW05		0–40	N	10YR3/3	clay loam		
		40–45	N	7.5YR4/3	clay	$CaCO_3$ filaments	Terminated at basal clay.
RW06		0–30	N	10YR3/3	clay loam		
		30–35	N	7.5YR4/3	clay	5% gravels	Terminated at basal clay.
RW07		0–10	N	10YR5/3	clay loam		Terminated at bedrock.
RW08		0–30	N	10YR5/3	clay loam		Terminated at basal clay.
RW09		0–35	N	10YR3/3	clay loam	$CaCO_3$ filaments	Terminated at basal clay.
RW10		0–30	N	7.5YR4/3	silty loam		
		30–35	N	7.5YR4/4	silty clay loam	80% gravels	Terminated at bedrock.
RW11	41MH94	0–10	N	10YR4/3	silty loam	50% $CaCO_3$ nodules	Terminated at bedrock.
RW12		0–10	N	10YR4/3	clay loam	90% gravels	Terminated at bedrock.
RW13		0–30	N	10YR3/3	clay loam	20% gravels	Terminated at bedrock.
RW14		0–35	N	10YR3/3	clay loam	10% gravels	Terminated at bedrock.
RW15		0–40	N	10YR3/3	clay loam		Terminated at basal clay.
RW16		0–30	N	10YR3/3	clay loam		Terminated at basal clay.
RW17		0–35	N	10YR3/4	silty clay loam		
		35–40	N	10YR3/4	clay		Terminated at basal clay.
RW18		0–40	N	7.5YR4/4	silty loam	surface gravels	
		40–45	N	7.5YR4/4	silty loam	15% rounded gravels	Terminated at basal clay.
RW19		0–30	N	10YR3/4	clay loam	surface gravels	
		30–35	N	10YR3/4	clay	15% rounded gravels	Terminated at basal clay.
RW20		0–20	N	7.5YR4/4	clay loam	surface gravels	Terminated at basal clay.
RW21		0–35	N	7.5YR3/2	clay loam	surface gravels	
		35–40	N	7.5YR3/2	clay		Terminated at basal clay.
RW22		0–10	N	5YR4/6	clay loam	surface gravels	
		10–30	N	5YR4/4	clay		Terminated at basal clay.
RW23		0–5	N	5YR4/4	clay loam	surface gravels	
		5–30	N	5YR4/4	clay		Terminated at basal clay.
RW24		0–20	N	5YR4/4	clay loam		
		20–30	N	5YR4/4	clay		Terminated at basal clay.
RW25		0–25	N	5YR4/4	clay loam		
		25–35	N	5YR4/4	clay		Terminated at basal clay.
RW26		0–35	N	2.5YR4/4	clay loam		
		35–40	N	2.5YR4/4	clay		Terminated at basal clay.
RW27		0–30	N	2.5YR4/4	clay		Terminated at basal clay.
RW28		0–30	N	2.5YR4/4	clay loam		
		30–40	N	2.5YR5/6	clay		Terminated at basal clay.
RW29		0–15	N	2.5YR4/4	clay loam		
		15–35	N	2.5YR4/6	clay	$CaCO_3$ filaments	Terminated at basal clay.

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
RW30		0–30	N	5YR4/4	clay loam	10% gravels	
RW31		0–10	N	2.5YR4/4	clay	95% gravels	Terminated due to dense gravels.
RW32		0–10	N	2.5YR3/4	clay		
		10–20	N	2.5YR3/4	clay	20% $CaCO_3$ nodules	Terminated at basal clay.
RW33		0–10	N	2.5YR4/4	clay	95% gravels on surface	Terminated at basal clay.
RW34		0–30	N	2.5YR3/4	clay		Terminated at basal clay.
RW35		0–20	N	7.5YR3/3	clay		
		20–30	N	2.5YR4/4	clay		Terminated at basal clay.
RW36		0–50	N	5YR5/6	sandy loam		
		50–60	N	5YR5/4	sandy clay loam		Terminated at basal clay.
RW37		0–80	N	5YR4/4	sandy loam		Terminated due to depth.
RW38		0–80	N	5YR4/4	sandy loam		Terminated due to depth.
RW39		0–60	N	5YR4/6	sandy loam	$CaCO_3$ filaments	Terminated at basal clay.
RW40		0–50	N	5YR4/6	sandy loam		
		50–60	N	2.5YR4/6	clay	$CaCO_3$ filaments	Terminated at basal clay.
RW41		0–30	N	5YR4/6	sandy loam		
		30–35	N	2.5YR4/6	clay		Terminated at basal clay.
RW42		0–40	N	5YR4/3	silty clay loam		
		40–45	N	5YR4/4	clay		Terminated at basal clay.
RW43		0–40	N	5YR4/3	silty loam	$CaCO_3$ filaments	Terminated at basal clay.
RW44		0–60	N	5YR4/4	sandy loam		
		60–80	N	5YR4/4	sandy clay loam		Terminated due to depth.
RW45		0–40	N	5YR4/4	sandy clay loam		
		40–45	N	5YR4/4	sandy clay		Terminated at basal clay.
RW46	41MH95	0–30	N	5YR4/4	clay loam		
		30–35	N	5YR4/4	clay	70% $CaCO_3$ nodules	Terminated at basal clay.
RW47	41MH95	0–10	N	5YR4/4	silty loam		**0–10 cmbs: 3 patinated clear bottle glass shards.**
		10–20	N	5YR4/4	silty loam		**10–20 cmbs: 3 patinated clear bottle glass shards.**
		20–45	N	5YR4/4	silty loam	5% gravels	
		45–50	N	5YR4/4	silty clay	$CaCO_3$ filaments	Terminated at basal clay.
RW48		0–40	N	5YR4/4	clay loam		
		40–45	N	5YR4/4	clay		Terminated at basal clay.
RW49		0–35	N	5YR4/4	clay loam	$CaCO_3$ filaments	
		35–40	N	5YR4/4	clay		Terminated at basal clay.
RW50		0–35	N	5YR4/4	clay loam		
		35–40	N	5YR4/4	clay		Terminated at basal clay.
RW51		0–35	N	5YR4/4	clay loam		
		35–40	N	5YR3/3	clay	10% gravels	Terminated at basal clay.
RW52		0–35	N	5YR4/4	clay loam	10% gravels	Terminated at basal clay.

Appendix B. Auger Probe and Shovel Test Data

ST/AP ID	Site	Depth (cmbs)	P/N	Munsell	Soil Texture	Inclusions	Comments/Reason For Termination
RW53		0–10	N	5YR3/3	clay loam		
		10–30	N	5YR4/4	clay		Terminated at basal clay.
RW54		0–45	N	5YR4/4	sandy loam	10% rounded gravels	
		45–50	N	5YR4/4	clay	20% gravels; $CaCO_3$	Terminated at basal clay.
RW55		0–35	N	5YR4/4	silty clay loam		
		35–40	N	5YR4/4	clay		Terminated at basal clay.
RW56	IFRW02	0–10	N	5YR4/4	clay loam		
		10–30	N	5YR3/4	clay		Terminated at basal clay.
RW57		0–40	N	7.5YR4/4	clay loam		
		40–45	N	7.5YR4/4	clay		Terminated at basal clay.
RW58		0–10	N	5YR4/4	clay		Terminated at basal clay.
RW59		0–50	N	5YR4/4	sandy clay loam		Terminated at basal clay.
RW60		0–10	N	2.5YR3/4	clay loam		
		10–30	N	2.5YR3/4	clay		Terminated at basal clay.
RW61		0–20	N	2.5YR3/4	clay loam		
		20–30	N	2.5YR3/4	clay		Terminated at basal clay.

APPENDIX C

ARCHAEOLOGICAL SITE FORMS

State Of Texas

Archeological Site Form

Field ID FS02

Form Date 12/16/2013

General Site Information

Site Name

☐ Revisit

Site Type prehistoric lithic scatter

Explanation of Type

scatter of prehistoric lithic debitage, tested cobbles, and chipped stone tools

Project and Permit

Project Name FGE Pipeline Addendum

Project Number 23583 **Project Funding** FGE

Permit Number 6402 **Permit Source** TAC

Recorder Information

Name Matthew C. Stotts **Address** 4407 Monterey Oaks Blvd, Bldg 1, Ste 110

Phone (512) 476-0891 **Fax** (512) 476-0893 Austin

Email mstotts@swca.com TX 78749

Affiliation SWCA Environmental Consultants ☑ **Recorder Visited Site**

Sources of Information

Owner

Spade Ranch, Spades 5 LLC

Informant

Additional Sources

Matt Carter and Rhiana Ward, SWCA.

Work Performed

Observation/Recording Date 12/10/13

Surface Inspection/Collection Date 12/10/13

Method 100% intensive pedestrian surface inspection

Mapping Dates 12/10/13

Method GPS, pace and compass

Testing Dates 12/10/13

Method shovel testing; 5 STs, 1 positive 0-20cmbs

Excavation Dates n/a

Method n/a

Records and Materials

Records
digital photos;daily journal;paper map;photo logs;shapefile;shovel test notes

Materials Collected
none

Special Samples
none

Temporary Housing Paperwork housed at SWCA Austin

Permanent Housing Paperwork housed at SWCA Austin

Location

Primary County Mitchell **Location in County** south-southeast

Other Counties

USGS Map and Quad Buffalo Draw (3201-111)

UTM Zone 14 **Easting** 309537 **Northing** 3552625 **Datum** NAD 1983

Elevation 2305 **Elevation Range** 2303–2307

Description of Location
From the intersection of SH 163 and CR 353 travel south on SH 163 approximately 2.43 miles. Site is located adjacent to SH 163 to the east.

Environment

Nearest Natural Water unnamed tributary 1.1 miles southeast

Major Drainage Colorado River

Creek Drainage Renderbrook Creek

Soil Description and Reference
Ana: Angelo silty clay loam, 0 to 1 percent slopes
mollisols

Percentage Surface Visible 70%

Surface Texture clay loam

Soil Derivation ☑ **Alluvial** ☐ **Colluvial** ☐ **Eolian** ☐ **In Situ** ☐ **Marine**

Other Soils

Environmental/Topographical Setting
Site is located immediately east of SH 163 on a mostly level alluvial plain within a broad valley. Vegetation consists of short grasses, immature mesquite, cacti, and small shrubs. A 20-foot-wide fire break and fence line are located in the western portion of the site.

Site Conditions

Circumstances Affecting Observation
cold weather

Site Condition less than 10% remains intact

Current Land Use
pasture, cattle grazing

Natural Impacts
minor erosion

Artificial Impacts
construction of fire break, vehicular traffic, fence line construction, vegetation removal, and cattle grazing.

Future Impacts
Proposed FGE Pipeline

Cultural Manifestations

Time Period of Occupation
unknown prehistoric

Basis for Time Period
lack of temporally diagnostic tools or features

☐ **Single Component** ☐ **Multiple Component** ☑ **Component Unknown**

Basis for Component
lack of temporally diagnostic tools or features

Cultural Features
none

Approximate Site Size 45 m north-south and 15 m east-west

Basis for Determination extent of surface scatter

Top of Deposit Below Surface surface

Basis for Determination artifacts observed on surface

Bottom of Deposit 10–20 cmbs

Basis for Determination positive shovel test MC02

Artifactual Materials Observed
5–10 chert flakes, one chert biface, tested cobbles, and chert shatter.

Discussion of Site

Site FS02 is a prehistoric lithic scatter of unknown age or cultural affiliation. The site was initially identified when lithic debitage and chert shatter was observed on the ground surface. Further intensive surface inspection identified tested cobbles and one early-stage chert biface. The majority of materials observed on surface consist of early-stage reduction flakes and tested cobbles. A total of five shovel tests (MC02–03, MS17–18, and RW02) were excavated during the investigation of the site, one of which (MC02) was positive for cultural material. Shovel test MC02 revealed one secondary chert flake at 0–20 cmbs. All shovel tests revealed dense basal clay at 40–45 cmbs. The site is flanked by a two-track road to the east and a graded firebreak to the west, both of which have affected the site. Other disturbances include fence line construction, vegetation removal, and cattle grazing. Based on these prior disturbances, lack of temporally diagnostic tools or features, and limited potential for intact buried cultural deposits, the site is not recommended eligible as an SAL or for inclusion to the NRHP. No further work is recommended.

Registration and Recommendations

Registration Status

State Arch Landmark	**Conservation Easement**
Registered TX Landmark	**National Register**

Registration Comments

Research Value

Site FS02 has limited research potential based on prior disturbances, lack of temporally diagnostic tools or features, and limited potential for further buried cultural deposits.

Further Investigations

No further work is recommended.

Attachments

GPS shapefile, site sketch map, topo map

State Of Texas

Archeological Site Form

Field ID FS03

Form Date 12/16/2013

General Site Information

Site Name

☐ Revisit

Site Type prehistoric lithic scatter

Explanation of Type

surface scatter of prehistoric lithic debitage, modified flakes, and one possible hammerstone

Project and Permit

Project Name FGE Pipeline Addendum

Project Number 23583 **Project Funding** FGE

Permit Number 6402 **Permit Source** TAC

Recorder Information

Name Matt Stotts **Address** 4407 Monterey Oaks Blvd, Bldg 1, Ste 110

Phone (512) 476-0891 **Fax** (512) 476-0893 Austin

Email mstotts@swca.com TX 78749

Affiliation SWCA Environmental Consultants ☑ **Recorder Visited Site**

Sources of Information

Owner

Spades 5 LLC

Informant

Additional Sources

Matt Carter and Rhiana Ward, SWCA.

Work Performed

Observation/Recording Date 12/10/13

Surface Inspection/Collection Date 12/10/13

Method 100% intensive pedestrian surface inspection

Mapping Dates 12/10/13

Method GPS, pace and compass

Testing Dates 12/10/13

Method shovel testing; 6 STs, all negative

Excavation Dates n/a

Method n/a

Records and Materials

Records
digital photos;daily journal;paper map;photo logs;shapefile;shovel test notes

Materials Collected
none

Special Samples
none

Temporary Housing Paperwork housed at SWCA Austin

Permanent Housing Paperwork housed at SWCA Austin

Location

Primary County Mitchell **Location in County** southeast

Other Counties

USGS Map and Quad Hyman NE (3201-114)

UTM Zone 14 **Easting** 309867 **Northing** 3558644 **Datum** NAD 1983

Elevation 2209 **Elevation Range** 2205–2210

Description of Location
From the intersection of SH 163 and CR 2183 travel south on SH 163 approximately 1.63 miles. Site is located adjacent to SH 163 to the east.

Environment

Nearest Natural Water unnamed drainage 30 m north

Major Drainage Colorado River

Creek Drainage Dry Hollow Creek

Soil Description and Reference
Dermont soils, 3 to 20 percent slopes
Mollisols

Percentage Surface Visible 90%

Surface Texture gravelly clay loam

Soil Derivation ☑ **Alluvial** ☐ **Colluvial** ☐ **Eolian** ☑ **In Situ** ☐ **Marine**

Other Soils

Environmental/Topographical Setting
Site is situated atop a small ridge with unnamed branches of Dry Hollow Creek located to the north and south. Vegetation consists of scattered mesquite and short grasses, and abundant gravels are visible on the ground surface. A north-south trending, graded fire break is located within the western portion of the site.

Site Conditions

Circumstances Affecting Observation
cold weather

Site Condition Site is in poor condition with less than 10% remaining intact

Current Land Use
pasture, cattle grazing

Natural Impacts
slope wash on edges of landform

Artificial Impacts
20-foot-wide fire break, fence line construction, vehicular traffic, and limited cattle grazing

Future Impacts
Proposed FGE Pipeline

Cultural Manifestations

Time Period of Occupation
Unknown prehistoric

Basis for Time Period
lack of temporally diagnostic tools or features

☐ **Single Component** ☐ **Multiple Component** ☑ **Component Unknown**

Basis for Component
lack of temporally diagnostic tools or features

Cultural Features
none

Approximate Site Size 95 m north-south and 35 m east-west

Basis for Determination extent of surface scatter

Top of Deposit Below Surface surface

Basis for Determination artifacts observed on surface

Bottom of Deposit 0 cmbs

Basis for Determination six negative shovel tests

Artifactual Materials Observed
10–15 chert flakes, one edge-modified flake, one scraper, one core, and one possible hammerstone.

Discussion of Site

Site FS03 is a prehistoric lithic scatter of unknown age or cultural affiliation. The site was initially identified when a small scatter of prehistoric lithic debitage was observed on the ground surface of a small ridge. The ridge, located between two tributaries to Dry Hollow Creek, contains minimal vegetation allowing for high surface visibility. The ground surface contains abundant mixed gravels which is indicative of shallow, deflated soils. A total of six shovel tests (MC14–15, MS24–26, and RW11) were excavated during the investigation of the site, all of which were negative for cultural materials. Shovel testing revealed very shallow, gravelly clay overlying bedrock at 5–7 cmbs. The artifact assemblage consists of 10–15 flakes, one edge-modified flake, one scraper, one core, and one possible hammerstone. The artifacts are composed of a tan chert with light gray banding/inclusions and minor patina. The hammerstone is composed of a light grayish brown, oblong shaped quartzite cobble. No temporally diagnostic tools or features were encountered, and no burned rock was observed. Prior disturbances to the site include earth movement associated with the construction of the fire break, vehicular traffic, fence line construction, and limited cattle grazing. Based on prior disturbances, lack of temporally diagnostic tools or features, and no potential for intact buried cultural deposits, the site is not recommended eligible as an SAL or for inclusion to the NRHP. No further work is recommended.

Registration and Recommendations

Registration Status

State Arch Landmark	**Conservation Easement**
Registered TX Landmark	**National Register**

Registration Comments

Research Value

Site FS03 has little research potential based on prior disturbances, lack of temporally diagnostic tools or features, and no potential for intact buried cultural deposits.

Further Investigations

No further work is recommended.

Attachments

GPS shapefile, site sketch map, topo map

State Of Texas

Archeological Site Form

Field ID FS04

Form Date 12/16/2013

General Site Information

Site Name

☐ Revisit

Site Type early- to mid-twentieth century farmstead

Explanation of Type

farmstead remnants including a windmill, tank, collapsed barn, corral, and artifact scatter

Project and Permit

Project Name FGE Pipeline Addendum

Project Number 23583 **Project Funding** FGE

Permit Number 6402 **Permit Source** TAC

Recorder Information

Name Matt Stotts **Address** 4407 Monterey Oaks Blvd, Bldg 1, Ste 110

Phone (512) 476-0891 **Fax** (512) 476-0893 Austin

Email mstotts@swca.com TX 78749

Affiliation SWCA Environmental Consultants ☑ **Recorder Visited Site**

Sources of Information

Owner

Max Caswell

Informant

Additional Sources

Alamea Young, Matt Carter, Rhiana Ward, and Katie Sloan, SWCA.

Work Performed

Observation/Recording Date 12/11-12/2013

Surface Inspection/Collection Date 12/11-12/2013

Method 100% intensive pedestrian surface inspection

Mapping Dates 12/11-12/2013

Method GPS, pace and compass

Testing Dates 12/11-12/2013

Method shovel testing; 7 STs, 4 positive

Excavation Dates n/a

Method n/a

Records and Materials

Records
digital photos;daily journal;paper map;photo logs;shapefile;shovel test notes

Materials Collected
none

Special Samples
none

Temporary Housing Paperwork housed at SWCA Austin

Permanent Housing Paperwork housed at SWCA Austin

Location

Primary County Mitchell **Location in County** west-central

Other Counties

USGS Map and Quad Westbrook (3201-141)

UTM Zone 14 **Easting** 311282 **Northing** 3573997 **Datum** NAD 1983

Elevation 2144 **Elevation Range** 2139–2148

Description of Location
From the intersection of FM 670 and CR 262 travel south on FM 670 approximately 1.1 miles. Site is located adjacent to FM 670 to the east.

Environment

Nearest Natural Water Wildhorse Creek 940 m southwest

Major Drainage Colorado River

Creek Drainage Wildhorse Creek

Soil Description and Reference
Spade fine sandy loam, 3 to 5 percent slopes
Inceptisols

Percentage Surface Visible 50%

Surface Texture sandy loam to sandy clay loam

Soil Derivation ☐ **Alluvial** ☐ **Colluvial** ☐ **Eolian** ☑ **In Situ** ☐ **Marine**

Other Soils

Environmental/Topographical Setting
Site is located within a gently undulating upland setting with a high ridge located to the north and Wildhorse Creek located to the south. The site is situated within a moderately wooded lot adjacent to FM 670 to the west and open agricultural fields to the east. Vegetation consists of dense pockets of high grasses and mesquite with many open areas of bare ground. A dirt lot used for hay storage is located to the north, and an overhead power line traverses through the northernmost portion of the site.

Site Conditions

Circumstances Affecting Observation
cold weather

Site Condition

Current Land Use
site is located in an abandoned lot adjacent to an open hay field

Natural Impacts
overgrowth of vegetation

Artificial Impacts
abandonment, dilapidation

Future Impacts
Proposed FGE Mitchell County Alternate Pipeline Route

Cultural Manifestations

Time Period of Occupation
early- to mid-twentieth century

Basis for Time Period
informant Max Caswell; construction materials

☑ **Single Component** ☐ **Multiple Component** ☐ **Component Unknown**

Basis for Component
only historic material observed

Cultural Features
Resource 1 is a small collapsed barn built in the 1920s or 1930s. The barn was constructed from wide wood planks and had a corrugated metal gable roof. It is in poor condition and is currently a ruin. Adjacent to the barn is Resource 2, a corral also built in the 1920s or 1930s. The corral is constructed from thick vertical wood posts, horizontal wood rails, and box wire. It is in fair to poor condition. Sections of the corral fencing are no longer upright, and the wood has deteriorated. The small size of both the barn and the corral suggest that they were not intended for cattle but instead were built to house smaller livestock.
Within the center of the site is Resource 3, a concrete water trough inscribed with the date “1927”. The trough measures 12 feet square and is constructed from poured concrete with a rough aggregate and a smooth concrete finish. Horseshoes and muleshoes were used to reinforce the concrete instead of rebar. The trough is in poor condition, with extensive cracking and spalling. Roughly 100 feet north of the trough is Resource 4, a well and cistern. The well has a small electric pump that was powered via a nearby utility pole. According to Max Caswell, the well was operational in the 1930s, however, he attached the electric well pump subsequent to 1961, at which time the water was non-potable (personal communication 2013), ostensibly due to an increased number of wells in

the area. The cistern was a cylindrical metal tank with reinforcing concrete in its base. The tank sat atop a low wood-framed platform. Currently, the cistern is in poor condition. The tank has collapsed, leaving its concrete base exposed, and the wood platform has deteriorated.

Resource 5 is a steel windmill tower. It is of historic age but was brought to the site and left in its current location in the 1960s by the current land owner. It was never used on the site, however, due to the diminished utility of the well (Max Caswell, personal communication 2013). The site also contains debris such as railroad ties, a broken flatbed trailer, and trash piles. The railroad timbers were likely brought to the property sometime in the 1960s, as Mr. Caswell previously worked for the railroad (Max Caswell, personal communication 2013). The wooden, flatbed trailer was also added to the site sometime after the 1960s by an individual who leased and farmed the land for 19 years (Max Caswell personal communication 2013).

Approximate Site Size 130 m north-south and 40 m east-west

Basis for Determination distribution of resources

Top of Deposit Below Surface surface

Basis for Determination artifacts and resources on surface

Bottom of Deposit 0–30 cmbs

Basis for Determination four positive shovel tests

Artifactual Materials Observed

Artifact scatter consists of clear glass shards, milk glass fragments, aqua glass shards, porcelain fragments, whiteware fragments, stoneware fragments, railroad lumber, corrugated metal, barbed wire, wooden trailer, can fragments, and miscellaneous metal fragments. Subsurface materials include: metal button, wire fragments, wire nails, porcelain doll leg, copper cap, copper washer, window glass, clear bottle glass, and miscellaneous metal fragments.

Discussion of Site

Site FS04 is an historic farmstead located in the northern portion of the project area, immediately east of FM 670, 1.71 km (1.06 miles) south of the FM 670/CR 262 intersection. The property is in the northwest corner of Block 28S of the north one-half of Section 26 of the Texas and Pacific Railway Company Survey, owned by Mr. Max Caswell. The site consists of several built resources and associated household debris, and measures 130 m north-south by 40 m east-west.

The site is situated within a moderately wooded lot with an open agricultural field to the east and FM 670 to the west. Vegetation consists of dense pockets of high grasses and mesquite, interspersed with areas of bare ground. A dirt lot used for hay storage is located to the north, and an overhead power line traverses the northernmost portion of the site. Six shovel tests (AY82–84, KS43, MC47, and RW47) were excavated to determine potential for subsurface deposits, four of which were positive for cultural material (AY84, KS43, MC47, and RW47) to a maximum depth of 30 cmbs. Soil on the site consists of brown sandy loam over brown to reddish brown sandy loam or sandy clay with calcium carbonate nodules at a depth of 30–50 cmbs. Shovel tests were terminated at the underlying, ancient and sterile soil.

Artifacts encountered within the four positive shovel tests include one metal button, wire fragments, wire nails, one porcelain doll leg, one copper cap, one copper washer, window glass, clear bottle glass, and miscellaneous metal fragments. Additional artifacts noted on the ground surface include clear, milk, and aqua glass shards, porcelain fragments, whiteware fragments, stoneware fragments, railroad timbers, corrugated metal, barbed wire, a wooden trailer, metal can fragments, and miscellaneous metal fragments.

Built resources located on the site include a collapsed barn (Resource 1), a corral (Resource 2), a concrete cattle trough (Resource 3), a well pump and cistern (Resource 4), and a windmill tower Resource 5). A house or house foundation was not discovered at the site, despite oral history evidence that one was present in the 1930s (Max Caswell, personal communication, 2013).

Although the vacant farmstead cluster is currently owned by Max Caswell, the historic resources were constructed by a previous owner. According to Mr. Caswell, he purchased the land from the Hunter family in approximately 1961. Records verifying that transaction date were not located, but deed research confirms that the Hunter family owned the land during the historic period. Since the structures at the site were primarily constructed during the 1920s and 1930s, research focused on determining ownership during that period.

The 312.5 acres historically conveyed as two separate parcels; an eastern 100-acre tract and a western 212.5-acre tract. It is the larger western tract that contains the farmstead. In 1916, a Mr. James P. Hunter (also referred to as J.P.) paid off the final installment of a loan on the 212.5-acre tract and owned it outright (Mitchell County deed book 42, page 528). Its previous owner was Mr. C.E. or C.N. Webb. James Hunter was born in Missouri in 1882. Before 1916 he was married to Alice J. Hunter of Missouri and was working as a merchant in a general retail establishment in Collin County, Texas (Collin County census records, 1910). Unfortunately, James Hunter died in 1919 and his wife Alice was left to run the family farm. The 1920 census records list Alice (referred to as Mrs. J.P. Hunter) as a farmer, and two of her sons as laborers, including 26-year old William A. Hunter (Mitchell County census records, 1920).

Alice J. Hunter tried unsuccessfully to sell the land in 1923, when she set up a nine-installment loan with J.M. Rogers (Mitchell County deed book 60, page 116). By 1930, however, Rogers had defaulted on the loan and the property remained with Alice (Mitchell County deed book 80, page 34). In 1930, however, she was no longer farming. Census records show Alice boarding in town with her daughter and druggist son-in-law (Mitchell County census records, 1930). Because of this, the 1920 census is the only record showing that the Hunter family farmed land in Mitchell County. In the 1930 and 1940 census records, none of the Hunters are listed as farmers; they instead include a fireman, laborer, cook, and a grocery store manager. By 1930, William A. Hunter, who labored on the farm in 1920, was living with his wife Jemima in nearby Scurry, Texas (Kaufman County census records, 1930). By 1935, William and Jemima moved to Coahoma, Texas, where he worked as a manger of the telephone exchange and she worked as a telephone operator (Howard County census records, 1940). They remained in Coahoma until at least 1948 (Big Spring city directory). Alice J. Hunter continued to live in town until her death in 1945. Despite the fact that no member of the Hunter family appeared to be living on the land, they continued to own it. It is possible that they leased the land some time before 1930, but records to this effect were not found.

William A. Hunter became owner of the 212.5-acre parcel sometime after his mother's death in 1945. Records of the transaction were not located. In 1947, he expanded his holdings by purchasing the eastern 100-acre tract from C.W. and Alice Plaster (Mitchell County deed book 125, page 479). A right of way sale record shows that William A. Hunter owned the entire 312.5-acre tract in December of 1961. On the deed record he handwrote, "This is in part of my homestead" (Mitchell County deed book 208, page 9). This contradicts the other information that suggests he did not live at the property. Regardless, it can be assumed that the farmstead at the site was occupied by James P. or Alice J. Hunter between about 1916 and 1930. Whether the land was then farmed by their children or by tenants is not known. Mr. Max Caswell likely purchased the property just after 1961.

SUMMARY

Site FS04 is an historic farmstead dating to the early- to mid-twentieth century. The house location was not encountered and extant resources include a collapsed barn, a corral, a concrete cattle trough, a well and cistern, and a steel windmill tower. A flatbed trailer and railroad timbers were brought to the site (along with the windmill tower and electric well pump) sometime after 1961 (Max Caswell, personal communication 2013). Artifacts are contemporaneous with the built resources and consist of typical household debris. Four of the six shovel tests excavated on the site were positive for cultural material to a maximum depth of 30 cmbs.

Because of the severely deteriorated condition of its individual resources, the farmstead cluster has lost its integrity of design, setting, materials, workmanship, and feeling. Furthermore, since the cluster is vacant and is no longer supporting farming or ranching activities, it has lost its integrity of association. The farmstead cluster is no longer able to convey its historic character and does not display distinctive or representative architectural design. It is not associated with significant events or people and is unlikely to yield important information in history or prehistory. Because of this, the farmstead cluster is recommended as not eligible for listing as an SAL or for inclusion on the

NRHP. No further work is recommended.

Registration and Recommendations

Registration Status

State Arch Landmark	**Conservation Easement**
Registered TX Landmark	**National Register**

Registration Comments

Research Value

Because of the severely deteriorated condition of its individual resources, the farmstead cluster has lost its integrity of design, setting, materials, workmanship, and feeling. Furthermore, since the cluster is vacant and is no longer supporting farming or ranching activities, it has lost its integrity of association. The farmstead cluster is no longer able to convey its historic character and does not display distinctive or representative architectural design. It is not associated with significant events or people and is unlikely to yield important information in history or prehistory. Because of this, the farmstead cluster is recommended as not eligible for listing as an SAL or for inclusion on the NRHP.

Further Investigations

No further work is recommended.

Attachments

GPS shapefile, site sketch map, topo map

State Of Texas

Archeological Site Form

Field ID FS05

Form Date 12/16/2013

General Site Information

Site Name

☐ Revisit

Site Type prehistoric open campsite

Explanation of Type

surface scatter of prehistoric lithic debitage, chipped stone tools, and burned rock

Project and Permit

Project Name FGE Pipeline Addendum

Project Number 23583 **Project Funding** FGE

Permit Number 6402 **Permit Source** TAC

Recorder Information

Name Matt Stotts **Address** 4407 Monterey Oaks Blvd, Bldg 1, Ste 110

Phone (512) 476-0891 **Fax** (512) 476-0893 Austin

Email mstotts@swca.com TX 78749

Affiliation SWCA Environmental Consultants ☑ **Recorder Visited Site**

Sources of Information

Owner

Spades 5 LLC

Informant

Additional Sources

Alamea Young, Matt Carter, and Katie Sloan of SWCA.

Work Performed

Observation/Recording Date 12/12/13

Surface Inspection/Collection Date 12/12/13

Method 100% intensive pedestrian surface inspection

Mapping Dates 12/12/13

Method GPS, pace and compass

Testing Dates 12/12/13

Method shovel testing; 6 STs, all negative

Excavation Dates n/a

Method n/a

Records and Materials

Records
digital photos;daily journal;paper map;photo logs;shapefile;shovel test notes

Materials Collected
none

Special Samples
none

Temporary Housing Paperwork housed at SWCA Austin

Permanent Housing Paperwork housed at SWCA Austin

Location

Primary County Mitchell **Location in County** southeast

Other Counties

USGS Map and Quad Hyman NE (3201-114)

UTM Zone 14 **Easting** 310196 **Northing** 3564506 **Datum** NAD 1983

Elevation 2073 **Elevation Range** 2072–2074

Description of Location
From the intersection of SH 163 and FM 2183 travel north on SH 163 approximately 2.07 miles. Site is located adjacent to SH 163 to the east.

Environment

Nearest Natural Water Beals Creek 175 m south

Major Drainage Colorado River

Creek Drainage Beals Creek

Soil Description and Reference
Mangum clay, 0 to 1 percent slopes
Inceptisols

Percentage Surface Visible 70%

Surface Texture clay loam

Soil Derivation ☑ **Alluvial** ☐ **Colluvial** ☐ **Eolian** ☐ **In Situ** ☐ **Marine**

Other Soils

Environmental/Topographical Setting
Site is located within the broad floodplain of Beals Creek. The main channel of Beals Creek is located 175 m south, a possible relic channel is located 100 m south, and two tributaries to Beals Creek are located within 100 m to the east and west. Vegetation consists of patchy short grasses and cacti with sparse immature mesquites. A roughly 20-foot wide fire break traverses the western half of the site, and a dirt two-track road crosses through the southern portion of the site.

Site Conditions

Circumstances Affecting Observation
cold weather

Site Condition site is in poor condition with less than 10% remaining intact

Current Land Use
range

Natural Impacts
minor erosion, possible flooding

Artificial Impacts
fire break construction, fence line construction, vehicular traffic, and possible cattle grazing

Future Impacts
Proposed FGE Mitchell County Alternate Pipeline Route

Cultural Manifestations

Time Period of Occupation
Unknown prehistoric

Basis for Time Period
lack of temporally diagnostic tools or features

☐ **Single Component** ☐ **Multiple Component** ☑ **Component Unknown**

Basis for Component
lack of temporally diagnostic tools or features

Cultural Features
None

Approximate Site Size 85 m north-south and 30 m east-west

Basis for Determination extent of surface scatter

Top of Deposit Below Surface surface

Basis for Determination artifacts observed on surface

Bottom of Deposit 0 cmbs

Basis for Determination six negative shovel tests

Artifactual Materials Observed
one modified flake, ten chert flakes, and five burned rock fragments.

Discussion of Site

Site FS05 is a prehistoric open campsite of unknown age or cultural affiliation located in the floodplain of Beals Creek. The site was initally identified when prehistoric lithic debitage was observed on the ground surface. Intensive surface inspection identified ten chert flakes, one modified flake, and five burned rock fragments. The debitage is composed of tan chert, some of which exhibited a heavy patina indicating long time exposure on the ground surface. A total of six shovel tests (KS38, MC31–33, and MS36–37) were excavated during the investigation of the site, all of which were negative for cultural material. No temporally diagnostic tools or features were encountered. The burned rock fragments were observed scattered throughout the site area with no concentrations noted. In addition, the site has been impacted by the graded fire break, fence line construction, vehicular traffic, and cattle grazing. Based on prior disturbances, lack of temporally diagnostic tools or features, and lack of buried cultural deposits, the site is not recommended eligible as an SAL or for inclusion to the NRHP. No further work is recommended.

Registration and Recommendations

Registration Status

State Arch Landmark	**Conservation Easement**
Registered TX Landmark	**National Register**

Registration Comments

Research Value

Site FS05 has limited research potential based on prior disturbances, lack of temporally diagnostic tools or features, and lack of buried cultural deposits.

Further Investigations

No further work is recommended.

Attachments

GPS shapefile, site sketch map, topo map

State Of Texas

Archeological Site Form

Field ID FS01

Form Date 12/16/2013

General Site Information

Site Name

☐ Revisit

Site Type prehistoric lithic scatter

Explanation of Type
surface scatter of prehistoric lithic debitage

Project and Permit

Project Name FGE Pipeline Addendum

Project Number 23583 **Project Funding** FGE

Permit Number 6402 **Permit Source** TAC

Recorder Information

Name Alamea Young **Address** 4407 Monterey Oaks Blvd, Bldg 1, Ste 110

Phone (512) 476-0891 **Fax** (512) 476-0893 Austin

Email anyoung@swca.com TX 78749

Affiliation SWCA Environmental Consultants ☑ **Recorder Visited Site**

Sources of Information

Owner
Spade Ranch, Spades 5, LLC

Informant

Additional Sources
Katie Sloan, SWCA.

Work Performed

Observation/Recording Date 12/10/2013

Surface Inspection/Collection Date 12/10/2013

Method 100% intensive pedestrian surface inspection

Mapping Dates 12/10/2013

Method GPS, pace and compass

Testing Dates 12/10/2013

Method shovel testing; 8 STs, all negative

Excavation Dates n/a

Method n/a

Records and Materials

Records
digital photos;daily journal;paper map;photo logs;shapefile;shovel test notes

Materials Collected
none

Special Samples
none

Temporary Housing Paperwork housed at SWCA Austin

Permanent Housing Paperwork housed at SWCA Austin

Location

Primary County Sterling

Location in County north-central

Other Counties

USGS Map and Quad Buffalo Draw (3201-111)

UTM Zone 14 **Easting** 309473 **Northing** 3551034 **Datum** NAD 1983

Elevation 2324 **Elevation Range** 2320–2327

Description of Location
From the intersection of State Highway 163 and County Road 353, travel south on SH 163 approximately 3.4 miles. The site is located adjacent to SH 163 to the east.

Environment

Nearest Natural Water unnamed ephemeral tributary 850 m southeast

Major Drainage Colorado River

Creek Drainage Renderbrook Creek

Soil Description and Reference
Ana: Angelo silty clay loam, 0 to 1 percent slopes
mollisols

Percentage Surface Visible 75%

Surface Texture clay loam

Soil Derivation ☐ **Alluvial** ☐ **Colluvial** ☐ **Eolian** ☑ **In Situ** ☐ **Marine**

Other Soils

Environmental/Topographical Setting
Site is located immediately east of State Highway 163 within a mostly level alluvial plain. Vegetation consists of sparse mesquite, patchy short grasses, and prickly pear cacti. A roughly 10-m-wide fire break and faint two-track road trend north-south through the site.

Site Conditions

Circumstances Affecting Observation
cold weather

Site Condition Site has been completely destroyed by prior disturbances

Current Land Use
pasture, cattle grazing

Natural Impacts
minor bioturbation

Artificial Impacts
fire break construction, vehicular traffic, cattle grazing, fence line construction

Future Impacts
Proposed FGE Pipeline

Cultural Manifestations

Time Period of Occupation
unknown prehistoric

Basis for Time Period
lack of temporally diagnostic tools or features

☐ **Single Component** ☐ **Multiple Component** ☑ **Component Unknown**

Basis for Component
lack of temporally diagnostic tools or features

Cultural Features
none

Approximate Site Size 395 m north-south and 70 m east-west

Basis for Determination extent of surface scatter

Top of Deposit Below Surface surface

Basis for Determination artifacts observed on surface

Bottom of Deposit 0 cmbs

Basis for Determination 8 negative shovel tests

Artifactual Materials Observed
Five secondary chert flakes, one primary chert flake, and four tertiary chert flakes. More than 50 pieces of chert shatter also observed but not definitively cultural.

Discussion of Site

Site FS01 is a prehistoric lithic scatter of unknown age or cultural affiliation. The site was initially identified when chert shatter was observed on the ground surface within a graded fire break located immediately adjacent to State Highway (SH) 163. Intensive surface inspection identified lithic debitage on the ground surface consisting of five secondary flakes, one primary flake, and four tertiary flakes. The debitage is composed of light grayish brown to tan chert exhibiting a slight patina. Eight shovel tests (AY21–24 and KS02–05) were excavated during the investigation of the site, all of which were negative for cultural materials. The site has been affected by prior disturbances including earth movement for construction of the fire break, fence line construction, and vehicular traffic. Evidence of cattle grazing was also observed. Site FS01 is purely surficial and all cultural material was observed within a disturbed context. Shovel testing revealed no subsurface deposits. The site lacks temporally diagnostic tools or features, and no burned rock was observed. Based on prior disturbances, lack of temporally diagnostic tools or features, lack of subsurface cultural deposits, and general paucity of artifacts, the site is not recommended eligible as an SAL or for inclusion to the NRHP. No further work is recommended.

Registration and Recommendations

Registration Status

State Arch Landmark	**Conservation Easement**
Registered TX Landmark	**National Register**

Registration Comments

Research Value

FS01 has limited research potential based on prior disturbances, lack of temporally diagnostic tools or features, lack of subsurface cultural deposits, and paucity of artifacts.

Further Investigations

No further work is recommended.

Attachments

GPS shapefile, site sketch map, topo map